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of

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of

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TRANSACTIONS & STUDIES

of

The College of Physicians of Philadelphia

Volume 42
(Fourth Series)

Number 1
(July 1974)

A Tribute to Samuel X Radbill, M.D.

This issue of the *Transactions & Studies of The College of Physicians of Philadelphia* is dedicated to Samuel X Radbill, M.D., who for many years has been the guiding light of the Section on Medical History.

The publication of this issue follows a dinner and evening program in honor of Dr. Radbill which were held on March 12, 1974, at the College. The tribute was planned by Lawrence Charles Parish, M.D., and Herman Beerman, M.D., and the program was hosted by Harry George Gianakon, M.D., chairman of the Section on Medical History.

PROGRAM

5:30 Introduction

Harry George Gianakon, M.D., *Chairman*, Section on Medical History

The Samuel X Radbill Lecture
"*Medicine and Pharmacy in French Political Prints*"
William H. Helfand, *President*, Merck, Sharp & Dohme—Chibret

6:15 Presentation

John P. Hubbard, M.D., *President pro tem*, The College of Physicians of Philadelphia

Cocktails and Dinner

8:00 Tributes to Dr. Radbill

Herman Beerman, M.D.—Master of Ceremonies
Mrs. Gloria Hamilton—Senior Manuscript Editor, *The Merck Manual*
Walter B. Shelley, M.D.— *Chairman*, Library Committee of The College of Physicians of Philadelphia
Elliott H. Morse, *Librarian*, The College of Physicians of Philadelphia

Mrs. Lisabeth M. Holloway, *Associate Curator*, Historical Materials, Library of The College of Physicians of Philadelphia

F. Robert Michael, *Executive Director*, The College of Physicians of Philadelphia

Lawrence Charles Parish, M.D., *Clerk*, Section on Medical History of The College of Physicians of Philadelphia

On behalf of the Council, John P. Hubbard, president pro tem of the College, presented a citation to Dr. Radbill, which read as follows (Figure 2):

Whereas Dr. Samuel Radbill has served The College of Physicians of Philadelphia as a loyal Fellow and a dedicated member of the Library Committee;

Whereas Dr. Radbill has been the guiding light for the Section on Medical History of the College for many years and is a world-renowned authority in the history of medicine;

Whereas Dr. Radbill is a noteworthy practicing pediatrician, teacher, and scholar;

The Council of the College resolves this 26th day of February, 1974, to take recognition of these contributions and to express their appreciation

Given at Philadelphia

Harry G. Gianakon, M.D.
Lawrence C. Parish, M.D.
Walter B. Shelley, M.D.
Elliott H. Morse, M.A.
Herman Beerman, M.D.
F. Robert Michael, M.Sc.
John P. Hubbard, M.D.
John L. McClenahan, M.D.
Edward H. McGehee, M.D.
Francis C. Wood, M.D.
Donald M. Pillsbury, M.D.

INTRODUCTION

Dr. Radbill (Figure 1) was born in 1901, the year the Section was formed as the Medical History Club of the University of Pennsylvania. His association with the Section began almost three decades later, when, as a young pediatrician, he became interested in the history of medicine. His attendance at meetings and later his presentations of historical papers developed into a long-time "love affair" with the Section. Shortly after he returned from service in the Army in World War II, he became Clerk and later Chairman of the Section. In addition to planning worthwhile meetings of the Section, he was instrumental in the presentation of a series of lectures for the five Philadelphia medical schools and at the College.

Dr. Radbill has made his mark in other organizations devoted to the history of medicine: The American Association for the History of Medicine and the International Society for the History of Medicine.

Dr. Radbill pioneered in teaching the history of two disciplines of medicine, pediatrics and dermatology. He described this experience in a letter to the Editor of *The Bulletin of the History of Medicine* (Vol. 28, 276-277, 1954):

> At the instigation of Dr. John Porter Scott, Chairman of the Department of Pediatrics, I received, three years ago, the appointment as lecturer in the history of pediatrics from Dr. Aims C. McGuinness, Dean of the Graduate School of Medicine in the University of Pennsylvania. So far as I know, this is the first such lectureship in graduate education that has yet been established. The idea originally germinated in the mind of Dr. Herman Beerman, Chairman of the Department of Dermatology in this school, when he incorporated into the regular curriculum of his course a series of lectures on

the history of dermatology and syphilology, each lecture being given by a different speaker covering a special historical topic in which the speaker was particularly well versed. . . . In presenting the past, the present and future are always kept in mind. Primarily, those historical figures are mentioned who initiated the way of thinking we adhere to today, in our everyday medical life; those books and writings are described in such a way as to connect them with the literature the doctor reads and writes, and the development of techniques and mechanical devices utilized in this machine age of ours is traced back as far as possible.

For many years, he singlehandedly organized history sessions at the meetings of the American Academy of Pediatrics. Now he is serving as a member of the Task Force on the History of Dermatology of the National Program for Dermatology.

Collecting books and artifacts is the second line of Dr. Radbill's interest in medical history. The second floor of his home is packed with many important works on the history of pediatrics. His indices and his bookplate collection are noteworthy and contain many items not readily available elsewhere.

Dr. Radbill's capable leadership and energy have been utilized by the Library Committee of the College and now he has been enlisted by the Bicentennial Committee of the Philadelphia County Medical Society, an organization in whose affairs he has participated for many years.

Dr. Radbill has been a devoted practitioner in the Eastwick section of Philadelphia. Although he is a certified specialist in pediatrics, he serves the entire family and is also involved in the health planning needs of the community he has known since his childhood.

If we were to select one quality of Dr. Radbill it would be that of a friend, always ready to help.

Lawrence Charles Parish, M.D. and Herman Beerman, M.D.

A BIOGRAPHY OF SAMUEL X RADBILL, M.D., BY HIS DAUGHTER

A native of Philadelphia, my father has spent almost his entire life in the Eastwick section of the city. But he was born, in 1901, in the shadow of the house where the Father of American Surgery, Philip Syng Physick, once lived. Educated in the public schools of Philadelphia, he entered the University of Pennsylvania, intending to be a civil engineer; but the art teacher in his first class changed his mind. It seems the teacher objected to the holes my father wore in the drawing paper by his constant erasures.

When World War I ended, my father decided to have a go at pre-med, and to his delight in two years he found himself entered in that great medical temple on

Fig. 1. Samuel X Radbill, M.D.

Hamilton Walk. There in due time he won his M.D. degree, just 50 years ago.

Our hero then defected from the Quaker City for a year's internship at the Lancaster General Hospital where he studiously imbibed the wisdom of the Appels, Atlees, Farmers, and Pontius's, but he still found some leisure time to take his bosom companion Frances canoeing on the Conestoga.

He returned to Philadelphia for a residency at the Children's Hospital, the oldest hospital in this country devoted exclusively to children—a natural choice for one so interested in pediatric history.

Thus ended Phase I of his life.

Phase II began the next day, when he married his Frances, now a pert and pretty schoolmarm. Together they moved into their new home, in which he also established his office. This part of Southwest Philadelphia, a pastoral community when he was a boy, had become an industrial area whose families now comprised his Aesculapian flock.

Beginning his career as a general practitioner, he cared for parents and grandparents as well as their children, and even delivered their babies right in their own homes. In 1929 the country plummeted into the great depression and his diary, kept in a desultory fashion, gives a good portrait of medical life in those days. Whooping cough, diphtheria, pneumonia, abscessed ears, mastoids, febrile convulsions, fractures—the whole gamut of general practice crops up in his diary. There were office hours in the morning, in the afternoon, and after dinner into the night, with house calls and hospital rounds interspersed before breakfast, between office hours, and after. The office fee was $1.00, a house call $2.00. The $25 fee for a delivery included prenatal and postnatal care as well.

One aspect of my father's concerns seems to have changed little with time, as a quote from his diary will show: "Tonight to the County Medical Society to hear the medicos declaim against the government campaign for compulsory

Fig. 2. John P. Hubbard, M. D., president pro tem of The College of Physicians of Philadelphia, presents a citation to Samuel X Radbill, M.D., at the testimonial dinner and meeting organized by the Section on Medical History to honor Dr. Radbill on March 12, 1974.

health insurance. I cannot help but feel that as physicians we are justified in our stand against lowering the quality of medical care at the price of mass production in medicine." Does that sound familiar? He wrote it in January of 1939—35 years ago.

He was, however, all in favor of certain forms of community health care, where the need was clear. Beginning in November 1934, for many years he conducted three weekly well-baby clinics in local public schools, immunizing preschool children free of charge. The depression was easing by then, but most of the community still could not afford to pay privately for immunizations.

The Beermans and the Radbills were frequent companions in those days, Herman and Sam attending meetings of the Section on Medical History at the College, browsing together in bookstores, coveting one another's finds, and both families rejoicing in one another's triumphs. In June of 1935 they celebrated Herman's many achievements which culminated that summer in his election as a Fellow of The College of Physicians, passing his National Boards in Dermatology, and winning his Doctorate in Medical Science at the University of Pennsylvania. I'm not sure which Dr. Beerman cherishes most.

When World War II broke out, my father entered the army. He was sent to Texas, where he took charge of the communicable disease sections of several army hospitals. His final army duty was as chief of the medical department at Fort Crockett, in Galveston. One of the activities that lightened his Galveston days was making rounds with Arild Hansen at the Medical School and basking in the sunny company of that noble medical historian Chauncey Leake who was then the Dean.

His military career ended on May 30, 1946, when Major Radbill returned to his home and office. He was back no more than 15 minutes when he was called to see a sick child whose mother wasn't even aware that he had been away for the four years.

Today my father thinks of himself as semi-retired from practice. Translated into reality this means office hours with his faithful Frances on only four days a week, without night hours, and house calls only for such emergencies as elderly cardiacs or babies with high fevers and terrified mothers. His chief interest is still pediatrics, but that now means mostly his literary activities, since most of his patients are in their second childhoods.

His literary activities date back at least to his days as a medical student, and have shown themselves ever since. Be-

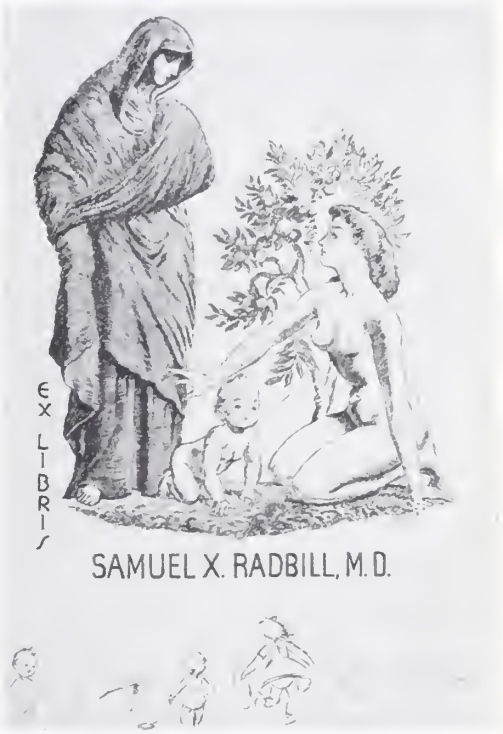

Fig. 3. One of twenty personal bookplates of Samuel X Radbill, M.D., used in his pediatric books, designed by Alexander Coll of Spain. It shows the protective arm of the child's mother holding back Atropos, the one of the three fates who cuts the thread of life. The tree of life is behind the mother.

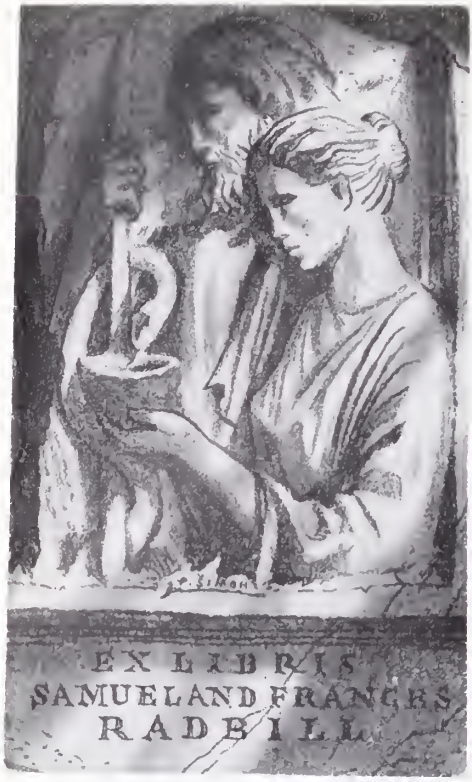

Fig. 4. A bookplate of Samuel X Radbill, M.D., which shows Hippocrates and Hygeia with the serpent and bowl. It was designed by Pavel Simon of Czechoslovakia.

ginning in the late 20's, he gave weekly lectures to the nurses at Children's Hospital. For at least 20 years he was also Lecturer in the History of Pediatrics at the Graduate School of Medicine of the University of Pennsylvania, lecturing there to the graduate students in dermatology as well. His many publications deal chiefly with medical history and biography, pediatric history and folklore, and medical bookplates (Figures 3 and 4).

The good doctor joined his County Medical Society and the AMA as soon as he entered private practice in 1926. He served the Philadelphia County Medical Society in many capacities, but he especially enjoyed his two years as vice-president when the dynamic Dr. Katharine Sturgis was president.

He sat in the State Medical Society House of Delegates for more than a decade.

In 1939 he became a Diplomate of the American Board of Pediatrics and a Fellow of the American Academy of Pediatrics, and helped to organize the Pediatric History Club of the Academy, exhibiting books, pictures, and pediatric artifacts at their annual meetings for many a year. A member of the Philadelphia Pediatric Society since he began to practice, he has prepared a history of that Society, delivered several historical addresses, and is now one of the honorary senior advisors.

I don't know when bibliomania first seized my father, but this overwhelming passion has played a major role in his life, and his biography would be incomplete without recounting some of its signs and symptoms. Nearly every day his diary of yore records a stop or two at bookdealers. Every New Year's Day he'd resolve to stop book buying, as an exorbitant luxury, but the very next day he'd be nipping around to Leary's or Gimbels or to a little shop he'd spotted while on a house call, looking for bargains he could afford. On free afternoons he'd sit in an auction room, appalled when someone bid $25 for just one book, and fuming when outbid for a treasure he had his eye on. His impressive working library is the result of these book-collecting expeditions, and his activities as a bookplate connoisseur are an offshoot.

By August 1933, he had made a great discovery—the large store of old discarded duplicate books in The College of Physicians—and Walton B. McDaniel 2d, the College Librarian, began getting visitations from the insatiable bargain hunter. Despite some buttering-up by presentations of books to the College Library that the Library lacked—always a treat for my father—he found McDaniel a hard bargainer and despaired of getting any bargains from him.

What a time these two bibliophiles had together! In February 1935 the diary records: "McDaniel sold several truckloads of duplicates at junk rates—less than 40 cents a hundred pounds, and then turned around and charged me 50 cents for a duplicate magazine!"

My father's official association with The College of Physicians of Philadelphia began with his election as a Fellow in 1943, but he had attended many a session of the Section on Medical History before then. After the war, the Section was revived, and he was on the first program with a paper on "The Iconography of Benjamin Rush." In 1950 he was elected Clerk, proceeding to the chair in due course. It was while he was clerk that the Kate Hurd-Mead Lectures developed, with the aid of those loyal supporters of the Section from Women's Medical College, William Leaman and Marion Fay. As chairman of the Library Committee of the College he served as one of the curators of the Osler Library at McGill University under the terms of Sir William's will. And it was while he was chairman of the Library Committee that the Medical Documentation Service and the Regional Medical Library program were launched, largely through the efforts of the Librarian, Elliott Morse.

I cannot end this biography without saying a few words about my father's constant helpmate. His diary on January 19, 1935, reveals the following: "Showed Frances some bookplate lore in which she seems interested. I hope to inveigle her into some form of collecting so that I may have a companion interested in my meanderings." She did indeed become a companion in his collecting meanderings. The collection of pediatric pictures, artifacts, and other memorabilia at their home is really her doing, for she has an uncanny knack for finding rarities in antiques and thrift shops. She too is a cherished friend of the many people throughout the world whose interests also lie in medical history, pediatric lore, and ex libris; and though she maintains that she doesn't have a book, she too has several personal bookplates of her own.

Gloria R. Hamilton
Senior Manuscript Editor,
The Merck Manual

In Appreciation

A librarian's penchant for detail often provides insight to broader truth through serendipity. For purposes of distinguishing among authors with the same or similar names, catalogers attempt to identify initials used by scholars.

Our own W. B. McDaniel, 2d, used his own first name so seldom that many colleagues were surprised to learn that the W. stood for Walton. Dr. O. H. Perry Pepper once rhymed him an apology saying how silly-I-am to have thought it was Willi-am. It is this same McD who first explained that the X in the middle of Samuel Radbill is an identifier that doesn't abbreviate a name.

One might say that it doesn't stand for anything. However, it is appropriate tonight to testify that this X factor stands for a great deal. The pressures of an active practice in pediatrics and dedication to family could provide the basis for disinterest in organizational medicine, medical history, and medical libraries. They are excuses that our honored Fellow never offers.

A personal library in his home outstrips the medical history resources of

many medical schools and challenges the structural strength of its floors and walls. It is much more than an accumulation of old books. His many years of service on committees of the Philadelphia County Medical Society, the Pennsylvania Medical Society, and the College of Physicians of Philadelphia confirm his generous gifts of time, the most precious gift of all.

For many years he served as Chairman of the Library Committee at the Philadelphia County Medical Society. In the mid 1950s that library was caught in the reorganizational effort which still may be reviewed in the reports prepared by Professor Edward B. Shils and the "Survey and Recommendations concerning the Organization and Program of the Philadelphia County Medical Society" in 1954 and 1955.

These studies resulted in the discontinuance of the County Medical Society Library despite eloquent pleas by Dr. Radbill and others. He and Dr. Howard U. Kremer declared in *Philadelphia Medicine* on November 18, 1955, "We feel that a merely bare meeting place is no Society headquarters. There should be a place to rest, an opportunity for quiet reading, intellectual intercourse and mutual stimulation. It is extremely low level to function without such facilities in a professional activity such as ours."

A subsequent letter written by another library advocate unwittingly criticized the College Library, in its efforts to assure County Library survival. Dr. Radbill characteristically provided editorial defense of the College Library in *Philadelphia Medicine*, indicating the difficulty in creating the same warmth of atmosphere in a large library as was achieved by its smaller neighbor. At the same time he wrote, "The College Library . . . needs the fullest moral and material encouragement of all Philadelphia physicians. More than 150 years of such support have given it national prestige. With the burgeoning of medical literature and increases in operating costs this assistance is particularly needed. Lacking the popular appeal of hospital and individual disease fund drives, the College Library must look to the Philadelphia medical profession for the fullest appreciation. As an essential part of medical research development in the Delaware Valley, it is most worthy of the physician's concern."

The Annual Report of the County Society's Library and Archives Committee in January 1958 contained Dr. Radbill's observation that consideration was being given to finding a means of supporting the College Library in exchange for full library privileges for all of its members. Unfortunately this practical dream was never achieved. This same report contains Dr. Radbill's expression of his enjoyment of the opportunities which the Library Committee had afforded him for service to the Society.

Another illustration of his enlightened professional statesmanship and vision was his plea in February 1963 for a Shrine for American Medicine in the Independence Hall area to "call public attention to the integral part our American style of medicine has played in the history of our nation." With the Bicentennial a scant two years away, many wish Dr. Radbill's appeal had reached more sympathetic ears.

Dr. Radbill accepted appointment to the Library Committee of the College in 1958 and became its Chairman in 1965. He played a major role in gaining Regional Medical Library status for the College Library. An article in support of the Medical Library Assistance Act was written by Dr. Radbill for publication in *Philadelphia Medicine*. He was instrumental in securing endorsement of the College Library's original grant application by The Philadelphia County Medical Society and by the State Medical Society of Pennsylvania. The State Medical So-

ciety endorsement was dramatically approved on the day when the Site Visit Team met at the College. He also authored an article in the *Pennsylvania Medical Journal* describing the history and modern services of the College Library.

Dr. Radbill worked energetically for regional medical library status despite some personal misgivings about the impact of this enlarged responsibility upon the College Library. He foresaw possible conflicts in staff loyalty with major funding from a federal agency and a lessening emphasis on direct service to the Fellows of the College. These problems and others unforeseen attested to his political intuition. Nevertheless he sought adjustments and alternatives as committed federal officials and private medical society members cultivated a sense of partnership to achieve common goals.

The Q. E. D. of this note of appreciation is that the X factor in Samuel X Radbill is dedication to the proposition that the mark of a profession is its respect for and cultivation of its literature, historical and modern; a belief that students should be taught the bibliographical structure and reference tools of a field to insure their ability to maintain their professional competence; a commitment to serve organized medicine as a means to achieve high standards of research, teaching and patient care and to buttress the effectiveness of libraries as a logical means of achieving these ends.

The X stands for an exceptionally experienced exponent of excellence.

Elliott H. Morse, M.A.
Librarian

SAMUEL X RADBILL AND HIS HISTORY OF MEDICINE

Dr. Radbill has given devoted service to the history of medicine in many ways. He has been an unusually productive writer, and the range of his interests has been wide: Greek and Roman medicine; Jewish physicians; American colonial medicine and physicians; pediatrics and pediatricians; bookplates; Philadelphia medical buildings, societies, and schools. Somehow he has found time also to make major contributions to several organizations concerned with medical history.

For four years, 1950 through 1953, he was Clerk of the College's Section on Medical History; in 1953 and 1954 he was its Chairman; through 1960 he served on its Executive Committee. The objectives which he announced for the Section, at the beginning of his service, still apply to it(1): "to bring to the attention of the medical profession in Philadelphia and elsewhere the resources and uses of the College . . . for the benefit of the public at large, to foster the study of medical history and the medical humanities, and to serve as a common meeting ground for all interested in the history of medicine."

Dr. Radbill was largely responsible for the initiation of the Kate Hurd-Mead Lectures in 1949-50, given under the joint auspices of the Section and the Woman's Medical College of Pennsylvania. Over 950 persons attended the three lectures that first year. That same year, attendance more than doubled at the course of six weekly lectures given here to interested students from the medical schools of Philadelphia, totalling 1,381 persons. Membership in the Section rose steadily during Dr. Radbill's tenure. Perhaps because of the consequent improvement in its finances, the Section was able to inaugurate an annual competition for the best essay on the history of medicine, to be submitted by a student in any of the medical schools

of Philadelphia. The Section continues to offer this prize, now called the Krumbhaar Award, and to publish the winning paper in the College's *Transactions & Studies.* The Section owes much to Dr. Radbill's industry and inventiveness.

His chairmanship of this Section coincided in part with his service to the American Association of the History of Medicine as its Secretary, in 1953, 1954, and 1955. "About 600 letters and three long-distance telephone calls originated from this office," he says in his Annual Report to the Association in 1953(2); next year there were 700 letters. It is hard to see how he got it all done. (One suspects that Mrs. Radbill must have been equally industrious.) Besides the constant activity necessary to keep the Association going, and its 500-odd members informed and interested, Dr. Radbill found time to prepare and present a paper—on bookplates—at the International Congress of Medicine at Nice, France, in 1952. Next year he published a paper in this journal on the Philadelphia Medical Society, and the year after, in the *Bulletin*, a note on medical history in graduate education.

He has seen to it that the records of the Section on Medical History and of the Association of the History of Medicine have been deposited in this Library, for the benefit of future historians of historiography. We owe him other acquisitions as well. The oldest document which the College owns relating to Philadelphia medicine, William Penn's grant of land to Griffith Owen, 1693, is his gift, as is a collection of mimeographed memoranda from Lawson General Hospital, Atlanta, acquired during his wartime service. As a working historian, he knows well the eventual importance of what may seem "unconsidered trifles."

The Curators of the Historical Collections have owed Dr. Radbill a very considerable debt. His long-standing interest and counsel and his faithful friendship have constituted a strong support. It is a pleasure to make public acknowledgment of our personal obligation.

Lisabeth M. Holloway, M.S. in L.S.
Associate Curator, Historical Materials

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A TRIBUTE

I would like to express the especial and deep gratitude of the Library Committee to Dr. Radbill. For years and years he has given unstintingly of his time and wisdom in the direction of our national treasury of books here at the College. He has provided us with the prospective and the retrospective that comes from not only having known, but having lived, the history of this great College.

It is to you, Dr. Radbill, that we have always turned for sage council, balanced judgment, and quiet leadership. And it is to you, Dr. Radbill, that we turn tonight in public expression of our esteem for you. We want you to know, you are loved, admired and appreciated. This is your evening. We want you to enjoy it, and may it live long in your memory!

Walter B. Shelley, M. D.,
Chairman, Library Committee

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About 45 book reviews, 21 editorials, 12 annual reports, 4 unpublished translations of books.

Medicine and Pharmacy in French Political Prints[1]

By WILLIAM H. HELFAND[2]

It is not surprising that the physician and the pharmacist should appear in French political caricature with considerable frequency. They were people whom everyone knew, for everyone had some direct relationship with them at some time in his life. France has always had a strong agricultural base, and even today the country ranks lower than other large European countries in the percentage of its activity devoted to industry. As a consequence, it is a country where the village and the small town play a dominant role in the lives of the people, and even when one moves to a large city there remains a strong attachment to village life. In the small towns the physicians and the other health practitioners had, as members of the middle class with an elevated position in local society, long played a dominant role. For example, in the series of legislative bodies that have served France beginning with the Etats Généraux of 1789, in which members of the bourgeoisie were first represented, they have had an increasingly large representation. This continues to the present day where physicians, pharmacists and their colleagues accounted for 56 out of 490 seats in the National Assembly of 1973 (1). A large part of the reason for the continued high status these health professionals enjoy in France can be traced to the influential power that results from this continual concentrated representation.

Although everyone knew them, it is not surprising either that they have been liked and disliked in perhaps equal measure, or that, as a consequence, they should over the years have been the butt of countless jokes, squibs and cartoons. In France a long tradition of attack, both humorous and serious, and aided by contributions from Molière, Montaigne, Voltaire and Le Sage, to name but a few, had contributed to the background experience on which the caricaturists, who began to use medical subjects as a resource for political commentary in the eighteenth century, based their work (2). But the background for this was universal, for satires directed at physicians appear in the works of certain Greek and Roman authors (e.g., Cato, Juvenal) and in other literatures as well (3). Although there are a few such prints with medical overtones which appear as early as 1565, interest in such subjects is only sporadic until we reach the Revolution of 1789 (4). From then on through the long history of French political caricature these subjects occupy a prominent and a continuing place (5).

The disruptive political events of 1789 provided an early forum of relative freedom for political satire and caricature, but this freedom, unhappily, did not continue unchallenged throughout subsequent periods in French history. At first under Napoleon and later under the governments of Louis XVIII, Charles X, Louis Philippe and Napoleon III, there were intermittent periods of severe press censorship. But there were also certain limited periods of relative freedom. And even under the regulations of press cen-

[1] The Samuel X Radbill Lecture, Section on Medical History, The College of Physicians of Philadelphia, March 12, 1974.

[2] President, Merck, Sharp & Dohme-Chibret, 192 Avenue Victor Hugo, 75116 Paris, France.

sorship, comments on foreign affairs were often permitted. For example, during the Second Empire the caricaturists were free to treat military campaigns, hereditary enemies (e.g., England) or menacing neighbors (e.g., Prussia), but anything concerned with domestic affairs was prohibited (6). During the productive intervals, such as between 1830 and 1835, or between 1848 and 1851, the output of the political artists and illustrators in the daily and weekly press was enormous, as though to make up for the lost time of the long, dormant years that had preceded the several revolutions (7). The press was largely responsible for the coming to power of several nineteenth-century governments, and the cartoonists contributed extensively to efforts to institute change, at least during those periods when they were free of political constraints (8). Not surprisingly, some of their efforts were specifically directed at guarding the continually abused freedom of the press. C. Motte's 'Essai de Guérison', published in 1819, is an interesting example of prints of this type, showing several possible 'solutions' for the overall problem (Figure 1) (9). Although other artists such as Grandville, Traviès, Jacques, Cham, Vernier and Gill played a part, the dominant figure in the production of French political prints in the nineteenth century was Honoré Daumier. His extensive output of more than 4,000 lithographs covers almost all aspects of life and manners, and forms a Balzacian equivalent in pictorial terms. More than 100 of his prints have medical themes, and they show doctors, nurses, dentists, surgeons, oculists, homeopaths, hypnotists, pharmacists, pharmaceutical manufacturers, empiricists and quacks. In these prints,

Fig. 1. Check List No. 19. Essai de Guérison. En vain pour les guérir . . .

Daumier railed against the prevailing methods such as

> dieting, leeches, cranioscopy, pedantic chemistry and, above all, the absurd arsenal of remedies vaunted by the publicity of the mid-century: dromedary ointment, Arab Racahout, up-to-date clysto-pumps. He may have jeered too at the idea of hygiene and the first attempts at antisepsis by spraying with Labarraque's mixture (10).

Most of Daumier's prints with some medical interest are social rather than political, a situation not at all due to his own interest but rather made necessary by the censorship imposed by the government of Louis Philippe in his September laws of 1835. The need for such restrictions was partly made necessary by Daumier's own work which, along with the contributions of Grandville, Traviès, Benjamin and others in two journals published by Charles Philippon, *La Caricature*, a weekly, and *Le Charivari*, a daily, consistently and often brilliantly ridiculed the members of the party in power.

Daumier's methods can best be illustrated by taking an example from his early period. During his youth, Louis Philippe, then the Duc de Chartres, had served a brief period of apprenticeship at the Hôtel Dieu in Paris where he had learned, among other skills, to dress wounds and to bleed the sick. During the period of his exile to the United States toward the end of the eighteenth century, he had had several occasions to practice bleeding on himself and was even reported to have successfully bled an important member of the Cherokee Indian tribe. This specific event led Daumier to issue a print showing Louis Philippe, then the king, lying in a bed between two tattooed Indians, with his small surgical kit on the floor nearby (11). Two years before this caricature appeared, another occasion took place where Louis Philippe once more had an opportunity to practice his medical skills. On October 27, 1833, a mailman named Wernet had been run over by the wheels of his coach near the village of Bourget, at a moment when the royal family was passing by. Those in the coach ordered it stopped, got out, and had Wernet moved to the side of the road where he could be properly cared for. The fortunate mailman was attended by the king himself, his brother, the Duc d'Orléans, several important military officers, the Marshals Soult and Gérard, and by others in the retinue as well. So successful was the treatment that the patient was back to work a few months later (12). A painting by Alfred Johannot, lovingly showing the benevolence of the king and his party, was commissioned soon after the event and was exhibited at the Paris salon of 1835 (13). But the news of the king's actions also inspired critics of the government, and almost immediately afterwards, on October 31, *Le Charivari* began to publish articles using the bleeding of Wernet as a pretext to attack Louis Philippe and his supporters. The king was accused of bleeding France, his regime became the 'Lancet Monarchy' instead of the 'July Monarchy,' he was described as the 'grand saigneur' of France, and it was even reported that he had taken a subscription to the medical journal *The Lancet* (*La Lancette*).

The event also inspired Daumier to publish a lithograph which one recent author has termed "the most beautiful, the cruellest and the most unjust" of Daumier's caricatures (14). In the 'Primo saignare . . .' Wernet becomes the symbol of the downtrodden French people, and he is attended by three men—the king with his lancet, the Duc d'Orléans holding a bottle of the 'Médecine Leroi'—a play on words of the well known purgative Le Roy and a product which appears elsewhere in the political prints (15)—and an apothecary with a striking re-

semblance to Mussolini who holds a large enema syringe, or clyster, at the ready. The title, from a Latin expression to first bleed, then purge and lastly give an enema, is amply illustrated by the activities of the men attending Wernet (16). The apothecary in the print is George Mouton, Marshal Lobau, and he and his syringe more than any other symbol have, in time, come to characterize the evils of the administration of Louis Philippe that were so often attacked by Daumier and his colleagues (17).

In all, there are more than 100 prints in which Lobau appears, usually with his clyster or some other pharmaceutical symbol (18). Nine of these are by Daumier, and this total includes a print that can be said to be the companion to the parody on the bleeding of Wernet—the Cortège of the Commanding General of the Apothecaries, a print issued to commemorate the elevation of Lobau to the peerage (19). What he did to deserve all this ridicule was really not so bad after all. Lobau, born Georges Mouton (1770-1838), had been one of Napoleon's generals and was named head of the National Guard by Louis Philippe in December, 1830. In this post he was called into action to suppress a Bonapartist demonstration at the Place Vendôme in May, 1831. Instead of calling for drastic measures, he resorted to the use of fire hoses to disperse the angry mob. This gesture was thus the forerunner of similar actions in later years in places as widely separated as Berlin and Birmingham, but Lobau's humane performance was siezed upon by the republican journalists and caricaturists in the 1830s as a focal point for their satirical barbs (20). Many of the Lobau prints show him with a clyster—playing one as a clarinet, riding one over the rooftops of the Place Vendôme, shooting one as though it were a cannon, etc. (Figure 2) (21-23). It was but a short step for the artists to alter the idea of a water hose into that of an enema syringe and thus into a symbol that became a

> magnificent pretext for caricature. In putting the hydraulic pump to work, Lobau had syringed the crowd; he behaved as an apothecary and would henceforth be considered and treated as such. This was not a sword which he carried but the syringe, symbol of . . . (a) . . . peaceful profession (24).

The clyster has been used for people other than Lobau, and it appears from time to time also in the political prints of the United States and England in addition to France. But no group has made as extensive use of it as have the French. One of the earliest examples comes from the late seventeenth century and comments on the war between the English and the Dutch (25). It shows the plight of the English, symbolized by a patient about to be given a clyster by an apothecary, while a Dutchman holds a pot nearby in case it should be needed. Other apothecaries, many with clysters also, are waiting if the first does not succeed in accomplishing his task. During the American Revolutionary War, about 100 years later, the print was again used with but minor changes in both the title and the illustration. Again, the Englishman is the patient while the apothecary is identified in one state of the print as Dr. B. Franklin. The other apothecaries remain in the doorway as before, but the Dutchman holding the pot has been eliminated—of course, he had little to do with the events in America in 1778. Through a window on one side of the print there is a view of the city of Philadelphia (26).

Certainly the clyster was a symbol of the profound materialism of France during the nineteenth century (27). Also, the continuing French interest in the clyster partly can be explained because of its obscene and phallic overtones. The medical print has long been a convenient

Fig. 2. Check List No. 29. Artillerie du juste milieu.

Fig. 3. Check List No. 9. La Consultation.

forum for such subjects largely because

> the satirist of medical subjects unconsciously feel(s) that the erotic can be emphasized, even rather broadly and obscenely, without shocking the public morals, because of the peculiar relations of the physician to society and to the fact that society tolerates less sexual repression in speaking of strictly medical subjects (28).

Perhaps this explains why medical subjects form the background of so many political prints. The basic idea of these two prints on the problems of the English, that of giving a clyster to a king, a country or perhaps a minister in the government, has been a frequent one. Over the years the French have used the theme in several ways; for example, in a comment on his problems at the time of the Revolution in 1848, Louis Philippe is given one as his prime minister, Guizot, watches (29). Charles X is the intended recipient in two prints issued toward the end of his reign, one proffered by some religious associates of the king, and another by Count Polignac, then Prime Minister (30-31). And Pierre-Denis Peyronnet, one of Charles' ministers, is to be given the same treatment in another caricature published at about the same time (32). Finally, in a rather explicit comment on the French defeats at the hands

Fig. 4. Check List No. 39. Les Nouveaux médecins de la République.

— Merci ; je sors d'en prendre !

Fig. 5. Check List No. 53. Merci; je sors d'en prendre!

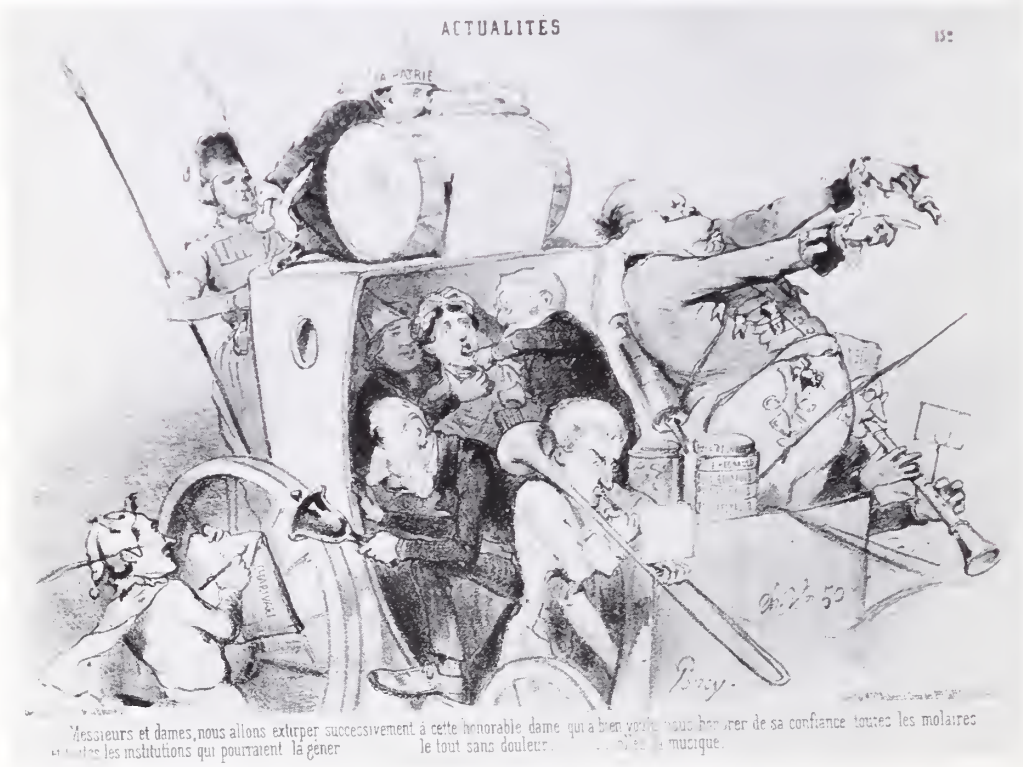

Fig. 6. Check List No. 43. Messieurs et Dames, nous allons extirper . . .

of the Germans in the Franco-Prussian war, there is also a print of the Kaiser giving a clyster to Napoleon III (33).

A theme closely related to these clyster prints has also been employed in many countries, including France—that of some person or group prescribing or administering some remedy for the ills or problems of the nation. The visual translation of this political concept to caricature is easily grasped and explains why the idea has been so often used. The British political cartoonists, James Gillray, George Cruikshank, Charles Williams, etc. have published a number of prints on the theme, and there are other examples from the American, Italian, German and Dutch literature as well (34). Of the French examples, Denmark is the patient in a print of 1864 when the Prussians were making claims on the territory of Schleswig-Holstein (35), England is the patient in the person of a sick King George III put into this unfortunate state by the failure of the Peace of Amiens in 1803 (Figure 3) (36), and, not surprisingly, France herself is also the patient in several of them. One of these, by Vernier, published in 1849 after the July Monarchy had fallen, shows several ministers in the new government trying to revive the sick patient (Figure 4) (37). Another, a late example by Daumier issued toward the close of his career in 1871 after the fall of the Commune, shows three physicians offering 'solutions' to France's problems, but the patient will have none of them (Figure 5) (38).

Fig. 8. Check List No. 17. La Consultation.

Fig. 7. Check List No. 13. La Crise Salutaire.

Three similar prints on remedies for France were published around 1850 by three different artists, Daumier, Cham, and Jacques, and all concern the same prescriber, Dr. Louis Désiré Véron

(39-41). Véron (1798-1867), like Lobau, was a subject of great fascination for the caricaturists, and as a result we have recorded more than 150 prints in which he appears. He was a man who lent himself to caricature—obese, flamboyant, opportunistic, even larger than life, and perhaps most important of all, the editor of a newspaper, *Le Constitutionnel*, which supported the policies of the government of Louis Napoléon both before and after his election to the presidency in 1848. Because he suffered from a chronic, scrofulous rash, the cartoonists invariably drew him with a monstrous tie and a collar drawn around the lower part of his face, and he therefore became easy to recognize (42). To the staff of writers and artists of *Le Charivari* and other opposition papers he was anathema, and along with Thiers, Molé, de Montalembert and other ministers in the government, he became a symbol for their continuing attacks. Véron had studied medicine and had even practiced it for a brief period, but he made his fortune from the successful marketing of a patent medicine, Reynaud's Ointment, a product whose rights he had purchased from a pharmacist near the Madeleine, close to

— C'est fini... le pouls ne bat plus!

Fig. 9. Check List No. 54. C'est fini . . . le pouls ne bat plus.

his medical office (43). The ointment was widely promoted for the cure of tuberculosis and related disorders (44). Because of this background in medicine and pharmaceutical manufacturing, the cartoonists had a ready-made symbol, and a large proportion of the prints in which he appears show Véron with some badge of his profession, a clyster; a round tin of his product, a mortar and a pestle, etc. Thus, he is shown as a quack medicine seller, or using a mortar in which to grind his enemies, or at work in a pharmacy, or as a circus performer balancing a clyster and some packages of Reynaud's paste, etc. (Figure 6) (45-48). In general, the caricaturists thought little of the various remedies offered by Dr. Véron (49).

Véron's scrofula is not the only malady to be referred to in the French prints of the eighteenth and nineteenth centuries. Cholera is the subject of one print in the long series of attacks on Louis Philippe (50); the seasickness of Charles X on his trip to England after the fall of his government in 1830 is duly reported in a cartoon issued at the time (51); the calculi of Napoleon III were satirized in many prints of 1870 and 1871, one reversible portrait of Bismarck being a representative example (52), and venereal diseases and prophylactic protection against them are the subjects of a colored engraving printed during the occupation of Paris by the British and allied troops after the battle of Waterloo (53). The plague is noted in different ways, and there are two important series of prints dealing with the plague that are concerned with Bonaparte's Egyptian campaign of 1799. One of these is to his credit, for a number of prints appeared during his period as Emperor showing him as a thaumaturge, touching plague ridden patients in the hospital at Jaffa (54). But, on the other hand, several prints also appeared after

Fig. 10. Check List No. 7. Les trois epoques de la vie de Jean Paul Marat.

his fall, as copies of British examples done some years earlier, showing him ignominiously ordering the poisoning of his own soldiers in the same hospital (55-56). The complex subject of Bonaparte's two visits to the plague patients has been extensively discussed elsewhere (57-58).

Caricature thrives on opposition, and because of this, the huge resource of Napoleonic caricature (there are at least 3,200 recorded) has in it only a modest contribution from the French (59). What does exist comes almost exclusively from the period at the end of his reign, when the Bourbon restoration finally per-

mitted some adverse comment on the Emperor's career. Two related prints show him under the care of Jean-Jacques Cambacérès, his close associate in managing the government ever since the days of the Consul; in one of these, 'La Consultation,' the physician notes that his patient has a 'bad constitution' (Figure 7 and 8) (60-61). Another engraving shows Napoleon looking for his lost crown on the streets of Paris while a large group of apothecaries carry clysters in support (62).

The illustration of taking a patient's pulse, as exemplified by the print of Napoleon and Cambacérès already noted, is repeated in other French prints. One of these offers a comment on the Constitution of 1791; others refer to Prussian expansionist activities in the 1860s and to the impossibility of restoring a monarchy to govern France after

Fig. 11. Check List No. 30. Donnez moi la première chose venue.

Fig. 12. Check List No. 40. Pharmacie de la Rue de Poitiers.

the savage upheavals of 1870 and 1871 (Figure 9) (63-65). Other medical practices are also used to illustrate political events in addition to bleeding, vomiting and purging which have already been mentioned. Surgery, for example, is used on the Kaiser to demonstrate his evil intentions (66), obstetrics is used in a lithograph by André Gill with Thiers, then the leader of the government, ready to deliver France (67), and dentistry is used on Charles X, a device employed several times to satirize the protruding teeth of this unfortunate ruler (68). There is also a series of prints done in the 1790s showing revolutionaries pulling the teeth of members of the clergy, the metaphor having been chosen because it was so easy to grasp. Of quasi-medical practices, phrenology is used on Louis Philippe, and on William Pitt and the King of Sweden at a time when they were doing their best to contain Napoleon (69-70); and a charlatan contributes to a general scene attacking the whole group of émigré princes, their

royal associates and the foreign sovereigns who welcomed them at a time when the Revolution was trying to establish itself (71). Other prints of charlatans appeared around 1790 where the medicine seller was accused of anti-revolutionary practices and one very interesting print shows Jean-Paul Marat, the revolutionary leader, in his early more peaceful career as a physician (Figure 10) (72-73).

The pharmacy itself is used as a background for political commentary in prints relating to the Revolution, Napoleon, Charles X, Louis Philippe and even as a warning against impending socialism during the administration of Louis Napoleon (Figure 11 and 12) (74-79). Usually, in these prints, the boxes and bottles in the pharmacy carry labels such as 'Imperial Ointment,' 'Royal Elixir,' 'Freedom of the Press,' etc., which give some scope to the artist to add words where illustration alone cannot convey his thoughts completely. Drug manufacturing also was a topic in several prints, one, 'l'Onguent National,' giving directions on how to form a successful republic (Figure 13) (80-81).

All of these examples show the breadth and diversity of the artists who contributed to the building up of the body of illustrations that, almost in themselves, offer a capsule history of French political life between the periods of the Revolution in 1789 and the Commune in 1871. Of course there are related prints both before and after these dates, but they are sparse in the former case and almost overwhelming in the latter. In all, I have identified more than 500 political prints which have some medical or pharmaceutical interest which were published during these years. But

Fig. 13. Check List No. 5. L'Onguent National.

this is, at best, only a partial list, for the total output of the imaginative caricaturists who worked in France creating these prints will never be known with certainty.

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67. Print No. 55—see check list.
68. Print No. 24—see check list.
69. Print No. 34—see check list.
70. Print No. 10—see check list.
71. Print No. 3—see check list.
72. Print No. 7—see check list.

73. Print No. 8—see check list.
74. Print No. 4—see check list.
75. Print No. 16—see check list.
76. Print No. 25—see check list.
77. Print No. 26—see check list.
78. Print No. 30—see check list.
79. Print No. 40—see check list.
80. Print No. 37—see check list.
81. Print No. 5—see check list.

CHECK LIST AND REFERENCES OF FRENCH POLITICAL PRINTS OF MEDICAL AND PHARMACEUTICAL INTEREST

The following list presents some descriptive information on 55 prints used as examples to illustrate the use of medicine and pharmacy in French political prints.

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Check List

1. *L'Anglois a toute extremitez.* Anonymous engraving, c. 1680.
   The print is from a pamphlet printed in Lyon concerning the war between the English and Dutch, and it carried captions in both French and Dutch. In the print England is a patient about to be given a clyster. A Dutchman holds a pot ready for the patient to vomit in. The pharmacist is described as 'Un apoticaire, la seringue à la main'. Through a doorway are a group of other apothecaries, some holding clysters.
   See Hein, p. 141 (No. 120).
2. *L'Anglais a toute extremitè.* Anonymous engraving, 1778.
   A copy of the above print, with several substitutions. This print is directed at the English again, but this time in terms of their problems with the Americans in the war for independence. There is no one holding a pot for the patient, and another change has been to substitute a city view through a window at the right for a view of a ship. In one state the clyster held by the apothecary is labeled 'Dr. B. Franklin' and the city is labeled 'Philadelphie'.
   Pa. Hist. Soc.
3. *La Foire de Coblentz ou les Grands Fantoccini Français.* Anonymous colored engraving, c. 1790.
   A revolutionary caricature directed against emigré princes, their associates and the foreign sovereigns who welcome them. One of the people shown, at the left, is Mirabeau-Tonneau, a frequently caricatured anti-revolutionary writer. Eleven people are shown in the print; one of them, at the right, is a quack. 'Le Tolpach Lambesc, ou l'arracheur de dents vendant le baume antirevolutionnaire'. He holds a bottle of medicine as he stands in front of a banner 'Par permission de Mgr. l'électeur se vend le baume antirévolutionnaire et anti patriote'.

De Vinck, No. 1961, (Vol. 12).

4. *Son Patriotisme est en Cannelle.* Anonymous aquatint, c. 1790.

A satire directed against André de Bellevue, a deputy in 1789 and several times President of the Constituent Assembly. Because he became a merchant dealing in groceries, this cartoon was designed to show him behind the counter of his shop. The counter bears the legend noted above; in the hands of the merchant is a scale on which are weighed the court and the people. De Bellevue also holds a copy of a prescription 'Journal de la cour et de la ville'. Shelves in the background have bottles and boxes with labels such as 'Pastilles de la reine', 'Elixir Royale', 'Opium National', etc.

De Vinck, No. 2894 (Vol. 17).

5. *L'Onguent National.* Anonymous colored engraving, c. 1790.

The purpose of the print is to give directions on how to insure a successful government. Several people are shown in a pharmacy interior; they include Mauri, the priest, Despremensil, the Bishop of Autun, Chapelier, Barnave and Mirabeau. In the pharmacy, one man is grinding, another uses a mortar and pestle and another heats a pot in an oven. Mauri watches the scene, and there is also the head of a king hanging from the ceiling. The text gives directions for preparing the product that will lead to a successful state.

De Vinck, No. 3061 (Vol. 18). There are other variations, including De Vinck, No. 3062 (Onguent National) and No. 3063 (L'Onguent National). Hein, p. 142, (No. 122); Julien, p. 45, (No. 105).

6. *L'Expirante Targinette.* Anonymous aquatint, c. 1791.

The subject of this allegorical print is the constitution of 1791. The constitution itself is the patient, attended by several people, including Target, Camus, the Abbe Fauchet, Bailly, the mayor of Paris, and his wife. One of those attending is pictured as a physician taking the pulse of the patient.

De Vinck, No. 1847 (Vol. 11).

7. *Les Trois Epoques de la Vie de Jean Paul Marat* projetté Saint par la Jacobinerie, anonymous engraving c. 1794.

Marat was assassinated by Charlotte Corday in July, 1793, and shortly after his death, this print appeared. It shows three views of his life; in the first of them, Marat is a quack medicine seller on a stage with an assistant. He holds a small bottle of medicine in his hand. The title of the scene is "Marat á Metz vendint des Phioles en 1787".

De Vinck, No. 5333 (Vol. 32).

8. *L'Aristocrate Charlatan.* Anonymous colored engraving, c. 1791.

An attack on the nobility. A quack is shown selling medicines to a crowd of people. The text notes that he is a deserter, that his elixir is poison, and that it is only distilled mercury with anti-national acid, etc.

De Vinck, No. 4038 (Vol. 23).

9. *La Consultation.* Anonymous colored engraving, 1803.

A print designed to ridicule the British following the failure of the Peace of Amiens. Three physicians attend a sick King George III. One of them is seated; he holds a copy of the "Traite d'Amiens". One holds a clyster labeled "Pour faire évacuer mare". George, in the position of having his feet elevated, reclines in a chair.

Bibl. Nat. QB-1 (1803 to August, 1804). De Vinck, No. 7602 (Vol. 56).

10. *Pitt et le roi de Suède consultant incognito le Docteur Gall.* Anonymous colored engraving, 1806.

A satire on the French domination of the European scene under Napoleon. The British, represented by Pitt, and the Swedes have been forced to visit the phrenologist, Dr. Gall, for help in containing Napoleon. The illustration shows Dr. Gall, in his office, surrounded by heads of Adam, Eve, Goliath, etc. examining both of them at the same time.

De Vinck, No. 8247 (Vol. 62); Bibl. Nat. QB-1 1806 (Jan. to Oct.); Weber, p. 85; Holländer, p. 335.

11. *Napoleon.* Anonymous engraving, March 1814.

A parody or somewhat altered copy of the well known portrait of Napoleon by Voltz. The print is a heading to a broadside and shows Napoleon with various parts of his face and shoulders made up of dead soldiers, etc. In the lengthy caption there is reference to the fact that he is the "Inventor of the Syrian Method of disposing of his own Sick by sleeping Draughts", and that he is the "Cup-Bearer of the Jaffa Poison".

Note: no reference to Jaffa in the illustration.

George, 1949, p. 356 (B.M. No. 12202); Broadley, p. 246 (Vol. 2), Grand-Carteret, 1895, p. 45; Ashton, p. 165 (Vol. 2); De Vinck, No. 8859, (De Vinck, No. 8865, gives French and German translation).

12. *Explication des Armes de Buonaparte.* Anonymous engraving, 1814.

One of many heraldic prints, reviewing certain episodes in Napoleon's career, and designed to point out his despicable character. This print is a copy of a British original, "Explanation of the arms of Napoleon Bonaparte", and one of the scenes illustrated deals with the incident concerning the poisoning of the sick soldiers at

Jaffa.
George, 1949, p. 382 (B.M. No. 12235 and 12235a).

13. *La Crise Salutaire*. Anonymous colored engraving, 1814.
A satire on Napoleon's abdication, showing him vomiting into a bowl, held by Camhacérès, representing his doctor. In one hand the doctor holds a tray on which is a bottle of "Potion suivant l'ordon." In the background is a part of the palace at Fontainebleau; two pharmacists stand before it, each with a clyster.
Bibl. Nat. QB-1, 1814 (5 to 20 April); De Vinck, No. 8983 and 8984 (Vol. 68); George, 1949, p. 384 (B.M. No. 12.239); Weber, p. 101; Holländer, p. 377.

14. *Le Nec plus ultra du Canibalisme*. Anonymous French engraving, 1815.
Napoleon is shown holding a flag and seated on dead soldiers, a tiger, etc. Moscow burns in the background. Several papers are shown coming out of his pocket, and one refers to the poisoning of the French soldiers in Egypt. It reads "Empoisonnement des Blessés Français à St. Jean d'Acre en Egypte".
Broadley, p. 72–3 (Vol. 2); De Vinck, No. 7809 (Vol. 57).

15. *La Violette Chiffonier*. Anonymous colored engraving, 1815.
An anti-Napoleon caricature, picturing him as looking for his lost crown in the streets of Paris. His supporters are hanging posters and announcements on a wall, an attendant carries a casket, and in the background are a group of apothecaries with clysters.
De Vinck, No. 9403 (Vol. 72); Bibl. Nat. QB-1 (April–16 June, 1815).

16. *L'officine des Journaux sous Napoléon*. Anonymous engraving, 1815.
A caricature directed against Napoleon and one of his pharmacists, Charles-Louis Cadet de Gassicourt. It shows the pharmacist in the "Pharmacie Centrale de Gigas," where the drugs offered were those of the papers favorable to the Emperor, rather than those on the royalist side. He is shown putting a slip labeled "Abdication" into a can. On the shelves of the pharmacy are many jars and containers labeled "poudre pour les yeux", "unguent imperial", etc.
Annales du Ridicule No. 10; Hein, p. 144 (No. 126); Boussel, p. 150; *Rev. S.H.P.*, 1949 (June–Sept), No. 124, p. 477–482.

17. *La Consultation*. Anonymous colored engraving, c. 1815.
A comment on the defeats of Napoleon, probably printed toward the close of the hundred days. He is being examined by Camhacérès who notes that the patient has a bad constitution.
De Vinck, No. 9527–9528 (Vol. 73); Grand Carteret, 1888, p. 105.

18. *Les adieux au Palais Royal*. Anonymous colored engraving, 1816.
A scene of Paris during the occupation by British and other foreign troops after the defeat of the French at Waterloo. It shows four soldiers being given some medication to help prevent venereal disease as a boy holding a horse looks on.
Bibl. Nat. QB-1 (1814, May–Dec.); Boussel, p. 147.

19. *Essai de Guérison. En vain pour les guerir on accourt à leur aide; la rage est dans le coeur, il n'est plus de remède*. Lithograph in color and black and white by C. Motte, 1819.
A cartoon on the restrictions on the press invoked by the regime of Louis XVIII. On the right are a woman in a chair labeled "quotidienne", a bird in a cage labeled "gazette", a man seated on the floor on a paper "Debats", etc. On the left a boy enters holding a clyster and a man carries a tray of various medicaments, "potion calmante", "extrait de bon sens", "essence anti-feodal", etc. These are proposed as a solution to the problem.
De Vinck, No. 10, 516 (Vol. 81); Bibl. Nat. Q-B1 1819 (Jan. to August); Urdang, p. 165 (No. 960).

20. *Remède contre la peur. Courage mon petit papa!* Anonymous lithograph, 1827.
The troubles of Charles X are illustrated in this print. A procession of eight religious figures are attending the king; one gives him a clyster. One holds a banner "nous serons breveté". Charles holds a rosary.
Bibl. Nat. QB-1 (1826–7); Carnavalet (No. 47).

21. *Il faut évacuer Sire. Ah! de quel côté Cher Polignac*. Lithograph by Fd. Mt., 1830.
The fall of the government of Charles X is symbolized in the print showing the king with his Prime Minister, Prince Polignac. The latter holds a clyster ready to give to the king who is seated on a chair. On the floor is the "Charte".
Bibl. Nat. QB-1 (1830—Caricatures les déçus); Carnavalet (No. 49).

22. *Désespoir des amis du Ministre Pourceaugnac resserré par la Garde Nationale de Granville. Hélas! nous l'avions pourtant servi chaudement pour le faire évacuer*. Anonymous lithograph 1830.
A comment on the arrest of Pierre-Denis Peyronnet, one of Charles X's ministers, after the fall of the government. He sits in a chair holding

a briefcase. Behind him are a woman, a priest and several soldiers, all with clysters.

Bibl. Nat. QB-1 (12 August to December, 1830); CARNAVALET (No. 49).

23. *Mal de Mer.* Anonymous lithograph, 1830.

A caricature supposedly done on the king's (Charles X) trip to England and exile. He, his wife and an officer have become ill and are vomiting over the rail of a ship. Charles throws up some papers which read "Liste des Proscrits", "Pouvoir Absolu", etc.

Bibl. Nat. QB-1 (12 August to December, 1830); CARNAVALET (No. 47 bis).

24. *Ah! tu feras des coups d'etat.* Anonymous lithograph, 1830.

A caricature commemorating the fall of Charles X. He is beset by demons, one of whom holds a paper "Le Roi ne cedera pas!" Another, with a forceps, pulls a tooth. The print is one of many using Charles X's buck teeth as the butt of satire.

Bibl. Nat. QB-1 (29 to 31 July, 1830).

25. *La pharmacie Royale.* Anonymous engraving, 1830.

Charles X and his chief minister, Polignac, are shown in a pharmacy working their ideas into the Charter. France, on one side, holds a banner reading 'Liberté'. The print offers a comment on the problems of the government of the King towards the end of his reign. Charles is shown on one side with a mortar and pestle, and in the background there are several shelves containing bottles of medicines. Polignac, then Prime Minister, notes that he is doing his part, and the King comments that he is preparing one in his own way.

HEIN, p. 145 (No. 127); *Rev. S.H.P.* No. 178 (Sept.–Nov. 1963), opp. p. 180; Bibl. Nat. QB-1 (9 to 27 July, 1830).

26. *La Pharmacie Malfaisante.* Lithograph by Roquelin, 1830.

This print is a variant on 'La Pharmacie Royale' (No. 25), and has the same people in it. But they are placed differently; here Charles X and his mortar are in the center. At the counter on the right, the Dauphine weighs the 'Charte' on one side of the scale and 'Pouvoir absolu' on the other. The 'Charte' is the heavier. Polignac watches the weighing, pouring medicine into a flask. In the mortar used by Charles X are 'La Charte', 'Liberté de la Presse', 'droite electora...'. There are jars on shelves of the pharmacy, and they contain 'Balles', 'Poudre', 'Incendie', etc.

Bibl. Nat. QB-1 (9 to 27 July, 1830); CARNAVALET (No. 48 bis).

27. *Le ministère attaqué du Cholera morbus.* Colored lithograph by Grandville, 1830.

A comment on the financial problems plaguing Louis Philippe's government. Several men are vomiting, one's face has turned green, and others leave the room in which the attack has occurred. Several papers, 'Liste Civile 18,000,000', 'don d'Italie', 'milliard des émigrés' give the reason for the sickness.

From *La Caricature*, No. 40, 4 August, 1831. Plate No. 79; WEBER, p. 113; HOLLÄNDER, p. 179; GORDON, p. 107; DE VINCK, No. 13,333 (Vol. 105); CARNAVALET (No. 51).

28. *L'artillerie du siège est destinée à faire évacuer les forteresses et à opérer sur les derrières de l'ennemi.* Black and white and colored lithograph by Desperet, after Philippon, 1831. Lobau, dressed in his general's uniform, is shown riding a clyster high above Paris.

From *La Caricature*, No. 41, 11 August, 1831. Plate No. 83. Description, p. 322. DE VINCK No. 12,396 (Vol. 97). SERGENT, p. 1

29. *Artillerie du juste milieu. Exercice de la pompe à... commandé par le beau Général en Chef des apothicaires.* Anonymous colored lithograph, c. 1832.

Lobau, a funnel on his head and a clyster at his side, fires a cannon which is, in reality, a large clyster. Two men observe the target, and in the distance another cannon, a clyster also, is fired.

HELFAND, 1964, p. 125; HELFAND, 1967, p. 22 (No. 58); HEIN, p. 147 (No. 130); JULIEN, p. 28 (No. 63).

30. *Donnez-moi la première chose venue.* Lithograph by Grandville and Forest, 1832.

Louis Philippe is a pharmacist, using a mortar and pestle behind the counter of a pharmacy. An assistant reaches for a jar on a shelf while the patient (France) waits. Lobau is shown through a small window, in the process of filling a clyster.

From *La Caricature*, No. 101, 11 October, 1832. Plate No. 208; Description, p. 806; DE VINCK, No. 12,296 (Vol. 96); BOUSSEL, p. 171; HEIN, p. 146 (No. 129); HELFAND, 1967, p. 13 (No. 19); GORDON, p. 122; JULIEN, p. 29 (No. 70).

31. *Musiciens de la Chapelle. Mr. Lobau, premier trombone du Roi.* Lithograph by Traviès, 1832.

Lobau, playing a musical instrument (a clyster) is shown as a fat man with bulging eyes. The vest he wears is patterned with small crossed clysters.

From *Le Charivari*, 19 December, 1832; SERGENT, p. 7; HEIN, p. 148 (No. 132); JULIEN, p. 31 (No. 77);

32. *Cortège du commandant général des Apothicaires. Le Prince Lancelot de Tricanule à son entrée dans la chambre des Pairs.* Colored

lithograph by Daumier, 1833.

A procession, the main member of which is Lobau, preceeded by a musician and followed by three attendants. One of these holds a clyster, one a pillow and one a chamber pot. Lobau's sword is a clyster labeled 'seringue d'honneur'. The illustration is Daumier's comment on Lobau's nomination to the Chamber of Peers.

From *La Caricature*, No. 143, 1 August, 1833, Plates No. 299 and 300, Description, p. 1139; Boussel, p. 165; Sergent, p. 5; Helfand, 1964, p. 125; Deltiel, No. 65; Julien, p. 36 (No. 90).

33. *Primo saignare, deinde purgare, postes clysterium donare* . . . Colored lithograph by Daumier, 1833.

Louis Philippe bleeds a man with a bandaged head, the Duc d'Orléans holds a bottle of "Medecin Leroi" and Lobau, in his general's uniform, kneeling on one knee, holds a clyster.

From *La Caricature*, No. 161, 5 December, 1833, Plates No. 337 and 338, Description, p. 1284; De Vinck, No. 12,395 (Vol. 97); Sergent, p. 6; Helfand, 1964, p. 124; Boussel, p. 165; Deltiel, No. 73; Julien, p. 36 (No. 90).

34. *Dieu de Dieu! Quelles Bosses.* Lithograph by Grandville, 1834.

A satire on Louis Philippe, showing him being examined by a phrenologist. On the wall is a chart of the 'Système de Gall'.

From *Le Charivari*, 27 March, 1834.

35. *Recompense Honnête, decernèe, en 1800, à Louis Philippe d'Orléans, Chirurgien et émigré mais toujours* . . . Lithograph by H. Daumier, 1835.

A note on the amateur interest of Louis Philippe in bleeding. The print shows him lying in a bed, scowling between two Indians; some surgical instruments are on a floor near the bed.

From *La Caricature*, No. 224, 19 February, 1835. Plate No. 466; De Vinck, No. 13,312 (Vol. 105).

36. *Louis Philippe saignant le Courrier Wernet.* Colored lithograph by M. Lavigne after A. Johannot, c. 1835.

An illustration of Louis Philippe and members of his entourage giving aid to the postman Wernet who had fallen while the royal coach passed by. Wernet is shown at the foot of a tree and is attended by the Marshalls Soult and Gérard, the Duc d'Orléans, Louis Philippe's son Joinville, etc.

Julien, p. 36 (No. 89).

37. *Pharmacie Républicaine.* Anonymous lithograph, 1848.

In a pot on an oven are four men, Louis Philippe, Guizot, Sauzè and Delessert, the Prefect of Police. The subtitle of the print is 'Recette Médicale'. Under the illustration, directions are given and some other laboratory equipment is lightly drawn in the background. The print satirizes the king's problems after the revolution in 1848.

De Vinck, No. 13,668 (Vol. 108); Carnavalet (No. 54).

38. *Je crois mon cher Guizot* . . . Lithograph by J. E. Deshayes, c. 1848.

A caricature commenting on the problems of Louis Philippe toward the end of his reign. He sits on a commode, attended by Guizot, as a physician, and an attendant who holds a clyster. The king comments that the regime (diet) prescribed by his Prime Minister is killing him. On a table is a bottle of "sedlitz".

Hein, p. 150 (No. 134); Carnavalet (No. 55).

39. *Les Nouveaux mèdecins de la Rèpublique.* Lithograph by Vernier, 1849.

A commentary on the troubles of France after the revolution of 1848. She is symbolized by a very sick young woman, attended by three physicians. One feels her pulse, Thiers pours some medicine into a clyster labeled 'Grand Remède', and several other bottles of medicine are on a table ready to be put in the clyster as well.

From *Le Charivari*, 4 September, 1849.

40. *Pharmacie de la Rue de Poitiers.* Engraving by H. Emy, 1849.

Concern over socialistic activity prompted this cartoon which takes place in the "Pharmacie antisocialiste". While an assistant mixes some ingredients in a mortar labeled 'Contre Poison', the pharmacist complains that the prescription offered to him is asking for too much.

From *Le Journal Pour Rire*, 5 May, 1845.

41. *Mimi Véron croit avoir enfin trouvè le vèritable moyen de pulvériser son ennemi.* Lithograph by H. Daumier, 1850.

Dr. Louis Véron holds a pestle above his head as he prepares to "pulverise" a rival newspaper, Le Charivari, in a mortar. At the time of the print, Véron was the editor of Le Constitutionnel, a paper that supported the policies of Louis Napoléon.

From *Le Charivari*, 14 Jan., 1850; Deltiel, No. 1981; Boussel, p. 171; Helfand, 1962, p. 52.

42. *Le remède de Mimi Véron.* Lithograph by H. Daumier, 1850.

Véron holds a large clyster intended for France, who turns away from the offer. The clyster is labeled 'Solution selon la formule présidence pour dix ans', a reference to the policy of those supporting Louis Napoléon to increase his term as president beyond that for which he was elected in 1848.

From *Le Charivari*, 14 May, 1850; Deltiel, No. 2008; Helfand, 1962, p. 53; Hein, p. 167 (No.

151); HELFAND, 1967, p. 23 (No. 61).

43. *Messieurs et Dames, nous allons extirper successivement à cette honorable dame* . . . Lithograph by C. Vernier, 1850.
In the coach of a charlatan, France is having her tooth pulled by Thiers. Musicians, represented by several newspapers which supported Louis-Napoléon, "Le Patrie", "Debats", attract the attention of a crowd. They are assisted also by Molé, who rings a bell and Véron, who holds a forceps with a tooth that has already been removed. Near Véron are several boxes of "Pâté Regnauld"; on his back is a clyster.
From *Le Charivari*, 25 June 1850; HELFAND, 1962, p. 52; HEIN, p. 169 (No. 153).

44. *Un remède pire que le mal.* Lithograph hy Cham, 1850.
Two newspaper editors, Emile de Girardin and Louis Véron, offer 'solutions' (large bottles of medicine) to a sick France, lying on the ground with her head supported on the "Constitution 1848".
From *Le Charivari*, 14 Nov. 1850; HELFAND, 1962, p. 52; HEIN, p. 166 (No. 150).

45. *De plus en plus entraîné par sa vocation, Mimi Véron dépose sa chambrière de chef de manege* . . . Color lithograph by E. de Beaumont, c. 1850.
Dr. Véron is shown as a circus performer, standing on a horse and juggling several boxes of 'Pâté Regnauld', a patent medicine from which he made his fortune. While he does this he also balances a clyster on his nose.
Rev. S.H.P., 1973, p. 552.

46. *Les remèdes du Docteur Véron.* Lithograph by Durandin, 1851.
Véron, holding a bottle of the Elixir de Prorogation' proposes a solution to France's problems. With his other hand, he points to a bottle labeled 'Abolition de l'Octroi'. Panacée Souveraine pour guérir le corps social.
From *Le Charivari*, 10 July, 1851.

47. *1822 le travail facile. 1852 le travail difficile.* Lithograph by Cham, 1852.
Two contrasting views of Véron at work. In one scene he is in a pharmacy preparing some drugs in a mortar. In the second he is writing for a newspaper.
From *Le Charivari*, 29 Oct. 1852; HELFAND, 1962, p. 53; HEIN, p. 170 (No. 155).

48. *Vous mangez trop, cela vous jouera un mauvais tour!* Lithograph by Cham, 1864.
France's concern over Prussia's expansionist policies is shown in this print. A physician takes the pulse of a hefty Prussian, shown at dinner. He has turned from a large portion of 'Sleswig' on his plate.
From *Le Charivari*, 1864.

49. *Le Docteur John Bull abandonnant son malade.* Lithograph by Cham, 1864.
A comment on the withdrawal of Britain's support for Denmark when Prussia was putting pressure for the ceding of Schleswig. A sick woman, seated in a chair, looks downcast as the doctor, hat in hand, leaves.
From *Le Charivari*, 1864.

50. *Faut s'entr'aider! . . . ça va aller!* Color lithograph by Faustin, 1870.
King William is shown with a clyster giving an enema to Napoleon III. Near Napoleon is a chamber pot labeled 'Foudres Imperiales' and there is a medicine hottle laheled 'Même en Voyage'.
LAMBERT, No. 34.

51. *Opération Chirurgicale subie par Guillaume* . . . Color lithograph by Taltiman, c. 1870.
A print intended to show the evil intentions of King William and the Germans. The king is operated on by two men, one from a butcher's shop and the other a veterinarian; as they open up his chest the head of the devil is revealed.

52. *La Fluxion de Bismark.* Color lithograph by A. Millet, 1870.
A portrait of Bismarck where he has a chamber pot for his helmet and crossed oysters underneath. The print is reversible, and is designed to ridicule Napoleon III, whose calculi and related problems were a continual subject for the caricaturists.
LAMBERT, No. 36.

53. *Merci; je sors d'en prendre!* Lithograph by H. Daumier, 1871.
The print is a comment on the various proposals put forth for a new government at the end of the war of 1870 and the uprising of the Commune. Three physicians are shown offering "solutions" for France's problems, but she will have none of them.
From *Le Charivari*, 29 December 1871; DELTIEL, No. 3899; HELFAND, 1967, p. 15 (No. 29).

54. *C'est fini . . . le pouls ne bat plus!* Lithograph by Stop, 1872.
The monarchy has died, and the event is symbolized by a physician taking the pulse of an emaciated woman who lies on a pillow labeled 'monarchie'. There is a clyster and some medicines in the print also.
From *Le Charivari*, 1872.

55. *Situation intéressante.* Colored lithograph by A. Gill, 1872.
Thiers, a physician, is examining France and notes that all goes well and that the delivery will be soon.
From *l'Eclipse*, 28 July, 1872.

A Tenth-Century Physician Prepares His Medicines†

By HAROLD J. ABRAHAMS, Ph.D.‡

Among the historical fascinations of medieval Italy, two are of deep interest in the history of medicine: one—a person, Sabbatai ben Abraham ben Joel (913-982), more widely known as Donnolo, (the Italian form of Domnulus, a diminutive of *Dominus*, i.e., master); the other—a school, namely the University of Salerno.

The transmission of Greek and Roman medical learning (Galen, Hippocrates, Dioscorides, etc.) to scholars of the West, resulting from translations into Arabic which were themselves subsequently translated into Hebrew and Latin, is a fact too well known to require repetition here. However, to understand certain phases of Donnolo's work it is necessary to have before us a picture of the linguistic realities which then prevailed on the Italian peninsula. The Byzantine presence in the Adriatic area was a source of tension with both the native chiefs of southern Italy and the Saracens. Hence, although a dialect of Greek prevailed in the area of the "toe and heel" of Italy, a peculiar kind of Latin was also spoken there, as were the Arabic and Hebrew languages.

Donnolo was born amid this linguistic mix in Oria, near Greek-speaking Otranto, on the southeastern coast of the "heel" of Italy in the year 913. Moslem raiders carried off all the members of his family to Palermo when he was twelve years old. It was while he was held by the Saracens that he acquired some knowledge of the Arabic language. Relatives ransomed him and he returned to Otranto where he was taught not only Arabic, but also, by his own claim, "all the sciences of the Greeks, Arabs, Babylonians and Indians" by a native of Baghdad. Greek sciences via Syriac translations had generated a great Arabic literature, although the originals suffered deterioration in the process. Donnolo seems to have felt the need for expanded and improved knowledge, for he left his native soil to travel in Latin-speaking southwestern Italy and elsewhere. He wrote about his acquisition of knowledge as follows (2):

> "So I turned hither and thither and travelled in order to discover and study the wisdom of the Greeks, and the wisdom of the Ishmaelites (i.e., the Arabs), and the wisdom of the children of Babylon and India, and I did not rest until I had made copies of the books of Greece and Macedon in their script and in their tongue and according to their own explanations . . . and . . . from the books of the wise men of Babylon and India. And . . . I travelled in [various] lands to seek out these nations who were expert in the wisdom of the stars and planets . . . Then I found . . . Bagdas . . . And I persuaded him by means of much wealth and many gifts to teach me the lore of the stars and the calculation of the planets."

Donnolo practiced medicine in Otranto and in Rossano, near the Gulf of Taranto, and there are indications that he was held in high professional esteem. He is credited with having been "the first European Jewish author known to us by name." He contributed to the literature of theology and of medicine, his most

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important work being a commentary on *The Book of Creation* (*Sefer Yezirah*), called *Hakemani*. Its date is the year 946 and it is of great historical interest. Two manuscripts of this work are known to be extant in Parma, Italy.

A work of lesser importance is his *Sefer ha-Mirkahoth*, also called *Sefer ha-Yakar* (i.e., *The Precious Book*), of which the Bodleian Library reports a manuscript in Florence. The first European Hebrew medical work and the first medical work written in Italy in any language after the fall of the Roman Empire, it is approximately of the date of the first of the Anglo-Saxon leech books. There remains of it a fragment in Hebrew of a peculiar sort, the usual literary Hebrew of the early Middle Ages prevalent in that part of Italy, interspersed with a few Arabic words and numerous Arabic idioms. Most of the names of plants in Donnolo's medical work seem to be those found in Dioscorides, and some of the Semitic names are met in the Jewish work *Sefer Asaph*. Because the content of Donnolo's book seems to resist being traced to other sources, the learned scholar, Moritz Steinschneider (who edited the *Sefer ha-Yakor* and published a German translation *Pharmakologische Fragmente aus dem zehnten Jahrhundert*, Berlin, 1868, and, earlier, in *Virchow's Archiv f. pathol. Anatomie*, 1867) felt that the book seemed to be an original one. Donnolo several times stated that the medicines he recommends are the products of experiments and investigations which he himself conducted, but he gives the names of many herbs in Greek and in Latin, transliterating them into Hebrew, his book thus showing strong Greek, not Arabic medical influence. Some of the passages prove incapable of comprehension to us. Some are Biblical, others Talmudic, and a few are Arabic. *The Precious Book* is actually an early pharmacopoeia of approximately 120 herbal drugs. A welcome feature is that there is little or no evidence of magic or superstition in Donnolo's book.

A comment about the University of Salerno is appropriate here. Legend has it that the School of Salerno was founded by four masters, a Greek, a Latin, an Arab and a Jew. In modern times this statement is not regarded as valid, despite the fact that a few recent historians still find it acceptable. In the person of Donnolo, however, we find all four influences. Whether or not it was an accident of geography, he is a physician of the time and place, and in him were the cultures of Greek, Latin, Arab and Jew. Charles Singer (in more than one place) stated that the legend of the founding of this, the first university in Europe, is "but history misunderstood."

Another sidelight is worthy of mention. Parallel to the peculiar Hebrew of southern Italy of that time is the Beneventan Latin and its script, which endured from the eighth to the fourteenth centuries. It is characterized by many abbreviations, ligatures and strange rhythms. The chief centers for the Beneventan literature were Benevento and Monte Casino, both located near Salerno and Naples on the Gulf of Paestum. About six hundred documents in Beneventan script have come down to us, of which fourteen are on medicine. The quality of their medical knowledge is poor and in strong contrast to that of later (eleventh century) writers of the School of Salerno.

Forgotten for many centuries by those interested in various phases of medicine, Donnolo has aroused new interest. A hospital in Tel Aviv has been named in his honor. Publications in both Hebrew and Italian dealing with Donnolo have appeared. The former Piazza Porta degli Ebrei in his birthplace, Oria, was given his name in 1965.

This paper is devoted to a translation into English of the extant fragment of

Donnolo's *Precious Book* based upon Steinschneider's German translation. A student of Steinschneider's translation encounters difficulties arising from the Hebrew original, and, in addition, some others due to Steinschneider's style, brave as he was to have undertaken to translate so difficult a work.

I have given the names of the drugs in the text in modern English. In the notes I have indicated Steinschneider's identifications of the names used by Donnolo.

FRAGMENT OF DONNOLO

This precious book is one on the aromatics, ointments, electuaries, potions, powders, plasters, lotions, [purifying applications, emollients, cleansers] and mixtures, which are called the "household furniture" of medicine [i.e., materia medica] and which have been arranged by Shabbethai the physician (nicknamed Donnolo), son of Abraham, who was carried off from the town of Oria, the purpose of the book being to teach Hebrew physicians how to prepare ointments (and other medicines), according to the knowledge of Hebrew and Greek physicians and to the practice of his own profession [a knowledge of] which he acquired while he studied medicine, carrying on investigation and research in profundities of the healing art for forty years, by the grace of God.

1. It is proper for the learned and experienced physician to know the balsams and the healing herbs [literally "perspirants"], i.e., juices or resins, of medicinal plants and the healing oils and herbs, to be able to really identify them, from the information imparted by the learned ones and the authors of books and [the knowledge of] our ancestors, so that he may understand and know whether the balsams, oils and herbs are clean and pure, without the presence of the least amount of adulteration and additions of inert matter, for the sellers of these substances deceive and falsify.

He should first be able to identify the balsams and medicinal herbs which are to be ground in a mortar and passed through a sieve, and to be able to identify those which are to be heated, by themselves, on a fire, and those which must be liquefied with honey or with oil. This will enable him to carry on such work on aromatics as he desires.

It is further proper for the learned one to know how to select the honey which he wishes to put into his potions, in order that it be very fresh and very sweet, that it have good body (thick and viscid), of good odor and red color, darkish and somewhat greenish (yellowish),[1] pure and clean (clear).

2. It is proper to ask from what place a particular honey comes, and from which pasture ground (of grass) and honey [nectar?] the bees of that place, for the most part, feed, for there are places in which there grow grasses of death and grasses of madness or which are powerful cathartics or which induce vomiting.

3. Everywhere that ivy flourishes—the bees of that locality will feed upon the ivy[2] and the honey which they produce will have poor odor and taste. Likewise, if bees feed upon broom,[3] brier[4] large and small fennel,[5] king's spear,[6] sweet elder or black elderberry,[7] dwarf elder,[8] squirting cucumber,[9] such honey is

[1] In a note, Steinschneider remarks that the Hebrew language, "as is known," uses the same word for both colors.

[2] Kumkum, Kios [Kissos] in Greek; Salvatro (silvatro), [H]edera in Latin.

[3] Sparton in Greek; [G]enista in Latin.

[4] Spalton in Greek. (No English equivalents could be found for Timilos, Tutumleos and Titymallos, all of Greek origin.)

[5] Nartekia in Greek; Ferula in Latin.

[6] Asfolidon, Kioneloso in Greek; Albuzo (albucus) in Latin.

[7] Aktes in Greek.

[8] Chamaiactis, Langaron, Agrian in Greek; Ebulus in Latin.

[9] Cucumerina in Latin.

mostly very bad, for it induces vomiting and catharsis.

4. The best honey, and most superior for medicinal potions is that where catnip,[10] pennyroyal,[11] wild marjoram,[12,13] rue,[14] all kinds of hyssop,[15] rosemary[16] and salvia grow, just as is the honey of Athens. For that reason Hippocrates ordered that all potions be sweetened with Athens (Attic) honey. So is the honey made in Otranto and in Oria and in Calabria, at a place called Martes [Martis, Mirto] near the city of Rossano.

5. The physician wishing to prepare a potion containing honey proceeds as follows: after pounding the aromatic drug and passing it through a very fine sieve, he warms the honey in an earthenware vessel, called a "lapio," over the coals, but not in the flame. He stirs the honey constantly, without stopping, to prevent the honey from boiling over due to the heat of cooking, and when he sees that all of the scum of the honey has risen to the top, he removes the vessel from the coals, and lets it stand until the honey has undergone something of a change and has cooled off, at which time he removes all the scum by means of a spoon, the honey becoming clear and clean; then he puts the vessel of honey back upon the coals and lets it warm up again somewhat, so that it changes from being a thin fluid and becomes somewhat thick and viscous. When the honey has increased in thickness, medicinal preparations made with it will "keep" for a long time, for they do not spoil quickly, but if the honey is "watery" and thin the preparations made with it spoil quickly and do not keep for any length of time. After the honey has been heated to the boiling point, according to directions above, the physician places the pounded and sifted aromatic drugs in a mortar.

6. If the preparation is one of those which contain balsam or oil, the latter is poured upon the ground aromatics in the mortar, and the physician grinds them together, then transfers them to a copper vessel, and boils them well;[17] if the preparation is one which is to contain "slimy" or "greasy" and soggy galbanum,[18] or storax,[19] which dissolves and disappears in a little honey, or tragacanth,[20] which dissolves and is ground up and becomes incorporated, or an extract of an herb or any other substance which dissolves or liquefies, these are poured upon the aromatics contained in the mortar and are all mixed well. Then the hot honey is poured over them, little by little, until the mixture takes on a somewhat dough-like nature, neither very soft nor very hard; the mixture is well stirred and triturated, in the vessel, using a spoon, until the honey cools off somewhat, then the physician transfers the product to any clean vessel containing good, old aromatic wine of excellent bouquet, or good "must" [unfermented grape juice], or cider.

7. If the potion is one of those which constipate, the physician dips the pestle into wine or the juice of mulberries, myrtle-berries or in rose-water and grinds the medicine (paste) with all his strength, in the mortar, then dips the

[10] Kalamina in Greek; Nepeta in Latin, Neter in Hebrew.

[11] Bleskonin in Greek(?); Puleion (pulegium) in Latin.

[12] Origanon.

[13] Collina, cunila (origanon).

[14] Pegam (ruta).

[15] Ispinon (hyssopinum?).

[16] Rosmarinon.

[17] Steinschneider, in a footnote at this point, implies that there is an imperfection in the manuscript.

[18] A gum-resin obtained chiefly from the giant fennel (Ferula galbanifula).

[19] Gomfitin: a balsam obtained from the bark of Liquidambar orientalis.

[20] Dragantum: a white to red gum obtained from Astragalus gummifer, a leguminous shrub.

pestle again in any of the fluids just mentioned and repeats the grinding, the dipping and the grinding a number of times, using all his strength in the grinding, until the drugs are crushed, well kneaded, mixed and blended. Then he transfers the product to a vessel made of glass, lead or wood, lined with gum juniper[21] (juniper resin) and oil, because an uncoated wooden or earthenware vessel will absorb the moisture and strength [i.e., medicinal virtue] of the preparations and they will soon deteriorate, becoming useless upon standing for a long time. The longer the preparation is permitted to age, without losing or gaining water, the greater is its effectiveness as a medicine, by comparison with a fresh preparation; for [I] Shabbethai have tested and confirmed the fact that medicinal preparations can be stored for thirty or more years and their capacity to heal became stronger, by the grace of God.

8. To prepare unguents which contain perspirants (dried juices) such as aloes,[22] mastic,[23] bdellium,[24] myrrh,[25] ammoniac,[26] sagapenum,[27] Hercules all-heal hard and dry,[28] box-thorn,[29] galbanum hard and dry,[30] opium,[31] storax[32] and other such materials: if they are not soggy and very soft, the physician puts all of them at the same time with the aromatic drugs, herbs and seeds into a mortar and grinds them together without applying great strength, so that they do not become hot from the friction of violent grinding and, as a result, stick together as a dough or paste. Also, he doesn't hurry to sift the mixture of herbs until it has been reduced to a fine powder, so that every ingredient comes out of the mortar together, then he gradually sifts it. Thus the mixture is handled until all of it together becomes a ground, completely sifted mass.

9. If, however, the preparation is one made from thick roots and thick aromatics, such as cinnamon, ginger,[33] zedoary,[34] costus root,[35] rhubarb,[36]

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[21] Steinschneider writes: "Bronike [Beronice] d.i. Sedros [Sendros]." He devotes the major part of two pages trying to identify this substance with certainty, quoting many authorities among whom are Avicenna, Aristotle, Ali ben Abbas (Haly Abbas?), Abul-Kasim, Dioscorides, Isaac, and Serapion, and suggests a number of identities, such as amber, realgar (from the Sanskrit word: sindura, the name of the red sulphide of arsenic, realgar As_2S_2) etc. However, sandarac, i.e., juniper resin, made from the sandarac-tree, Callitris quadrivalvis, native of Morocco, figures very prominently in his discussion. In view of the fact that it has a melting point of only 135° C. it would be quite possible to use it as a coating material upon wood. Lead melts at 327° C. and could therefore also be coated with sandarac.

[22] Dried juice of certain species of the genus Aloe. The American aloe is the century plant.

[23] A resin made from a small Mediterranean evergreen: Pistacia lentiscus.

[24] A fragrant gum made from a tree growing in Arabia, India and elsewhere, similar to myrrh, but weaker and used for making medicinal plasters and as a perfume. It is mentioned by Dioscorides and Pliny. The bdellium of Genesis 2: 12 might be a gem stone.

[25] An aromatic gum resin made from certain trees (Cammiphora myrrha, etc.) and shrubs of Arabia and Abyssinia.

[26] The gum resin of the Sumbul tree of Persia and India (Dorema ammoniacum).

[27] Serapion or sagapenum: a fetid gum resin from Ferula Persica (?).

[28] Apopaco: a gum resin made from the roots of Opopanax, an Oriental herb (Opopanax chironium), used in both medicine and perfumery. The roots and seeds resemble parsnip in taste. Another name is poundwort.

[29] Crocolykion: same as Lycium, a solanaceous plant growing in the Mediterranean region, the leaves of which are used for tea. Lycium vulgare of that region is the "matrimony vine." Another possible translation is crocus (saffron) the dried stigmas of the flower of the crocus sativus (autumn crocus).

[30] See footnote 18.

[31] The dried milky exudate of the opium poppy, Papaver somniferum.

[32] See footnote 19.

[33] Zangebil [Zinziber].

[34] [Setwall], an East Indian drug, of two varieties, long and round, obtained from Cur-

myrobalan,[37] snakeroot,[38] and other similar ones, the physician first puts only these in the mortar (and nothing else), and pounds them a little until they are crushed like the other aromatics, then he blends and stirs all of them with the dried juices and grinds them all together, as directed above.

10. Should the physician wish to add tragacanth to the potion, he first soaks it for three days in hot water and honey, until it is very soft. Then he puts it into a mortar by itself, pounds and softens it with the pestle until reduced to a pulp, then he places it upon the powdered and sifted aromatics, and stirs it into them, then kneads the mass with hot honey.

11. If the dried juices mentioned above, or other such drugs, are moist and soft, and the physician cannot grind them up with the other aromatics, if it is a case of storax[39] or galbanum[40] or turpentine,[41] any one of these is put into a small, tin-lined pan, and almond oil, or sesame oil, or old olive oil is added, small in ratio to the quantity of the drug, for the purpose of softening them. He then places the pan upon the coals and heats it until the drugs liquefy and mix with the oil, or he mixes them with the oil, and kneads the mixture well. When it has become as fluid as honey he adds hot honey from which the scum has been removed, mixes well and then pours the contents of the pan upon the ground and sifted aromatics, mixes them and kneads (triturates?) the hot honey mixture well, until finished (adequate).

12. But if the drugs are sagapenum,[27] slimy, tender and puffy, or ammoniac,[26] or Hercules allheal,[28] or siliquastrum[?],[42] or silphium,[43] or bdellium,[24] or box-thorn[29] or the juice of the cyperus,[44] or other such, being very slimy and soft, so that they cannot be ground together with the other aromatics being used, the physician puts them into a pan and adds wine or beer in a quantity dictated by his judgment, based upon the quantity of the drugs, so that he may be able to add any amount of honey without making the product too "watery". He sets the pan upon the coals, and warms it somewhat, until the scum separates and can be carried away by the wine or beer, whereupon the material is like honey. Now he pours it upon the ground and sifted aromatics and stirs the mass well, then he pours

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cuma Zedoaria (long) and Curcuma arromatica (round), of a camphor-like flavor and ginger-like odor.

[35] Costo: root of Saussurea Lappa, in great demand as a medicine in China and India, having an odor like that of orris root.

[36] Rheobarbaro.

[37] Mirobalanon: the young plum-like or prune-like fruits of Terminalia Chebula of East India. Steinschneider cites Ali ben Abbas (Haly Abbas?) and Mesue.

[38] Aristolochia: rhizome and root of the perennial herb of that name, furnishing the drug "serpentaria" or "snakeroot."

[39] See footnote 19.

[40] See footnote 18.

[41] Terebentina: terebinthina, an oleo-resin, from species of Pinus, chiefly P. palustris, in opaque masses of yellow color, lustrous, sticky and brittle, chiefly resin but containing about 1/5 of its weight in oil (spirits of turpentine). The Mediterranean "turpentine tree" is Pistacia Terebinthus.

[42] Siliquardo: Steinschneider is puzzled by this term and asks whether it might be siliquastrum.

[43] Lazaron: Steinschneider suggests that silphium is a synonym for laserpitium (Latin), which is a gum resin supposed to have been obtained from Thapsia Garganica, and used by the Greeks as medicine. There are twenty species of laserworts. They grow in North Africa, Western Asia and Europe. Steinschneider also considers asafoetida as a possibility.

[44] Kippaon Ron [Kypeiron]: Cyperus, of the sedge family of plants, an aromatic substance used in embalming. Cyperus Papyrus and other species are still used in medicine. The Egyptians used its stems for making papyrus. Cyperus Rotundus ("nutgrass") yields an oil, popular in India as a perfume.

upon that the hot honey in sufficient quantity and proceeds as directed above.

13. There are the drugs which liquefy only by the heat of a fire: Every drug which sticks to the hands like pitch [i.e. are not soluble in water] and cannot be removed without using oil, such as pitch, rosin, galbanum, turpentine, wax,[45] tar,[46] Burgundy pitch,[47] and all such, liquefy only on the fire. But those which stick to the hands and can be removed by water, such as gums[48] (tragacanth and similar ones), Hercules allheal,[28] opium,[31] sagapenum,[27] silphium,[43] ammoniac,[26] bdellium.[24] myrrh,[25] juice of cyperus[44] and lycium,[29] these dissolve in water, wine or beer or other fluids, when they are slightly warmed upon fire-coals. Storax,[19] ladanum,[49] frankincense[50] and all such substances turn fluid when mixed with oil and honey, and tragacanth becomes soaked and softened by hot water and honey.

14. Should the physician desire to make a plaster containing aromatics and perspirants the procedure is: he first grinds finely the aromatics and healing herbs or juices if they are not soft and moist, as directed above, with the exception of pitch, rosin, galbanum, wax and turpentine, which are all put into a pot placed upon a fire of coals and upon melting are passed through a copper sieve of fine mesh, passing purified from it into another pot. Then the physician gradually adds the finely ground and well sieved aromatics and herbs to the pot containing the melted and purified pitch, rosin, galbanum, turpentine and wax, mixes and stirs them well, after having removed the pot from the coals. He does not permit them to over heat on the coals, for if the mixture becomes too hot it catches fire, burns and becomes useless. But it is satisfactory to mix them with the melted substances when not on the fire, then wait until they cool off and congeal, at which time they are kneaded by the hands for a sufficient time. To prevent the plaster from sticking to his hands during the kneading, the physician mixes thoroughly strong vinegar, oil and butter, in equal proportions, by his hands, in a vessel, until all have become incorporated and become solid like an ointment. Then he applies it to his hands continually and kneads the plaster over the warmth of the fire, until he has accomplished that which the directions state. Thereupon he spreads the product upon a soft, pliable skin [leather?], and binds it to the patient's body.

15. To impart a pleasant odor to a plaster the physician adds silaus,[51] seeds of garden lovage,[52] round snakeroot,[38] seeds of fenugreek,[53] ground finely. (If no galbanum and turpentine are handy, rosin[54] may be substituted.)

16. These are the drugs which catch fire and burn or get burned when heated, without melting: aloes,[22] olibanum,[50] mastic,[23] myrrh,[25] sagapenum,[27] am-

[45] Itran: Steinschneider cites Talmud (Sabbat. IX, 6) and Maimonides, leaving doubt as to whether it is beeswax or pitch.

[46] Igropisin: "Pix Liquida."

[47] Glukypisin: Constantine the African identifies this also as pix (pine tar, from Pinus Palustris?); Asaph thinks it is glycyrrhiza, (licorice).

[48] Komos: he mentions Talmud.

[49] A dark, bitter, brittle resin obtained from various species of rockrose, Cistus Ladaniferus (Spain, Portugal), and C. Creticus (Crete, Syria), formerly widely used in medicine. The flowers of rockrose resemble those of the wild rose.

[50] Olibanum, a gum resin from several species of Boswellia (Asia and Somali).

[51,52] These are close relatives, which Shabbethai calls "sileos,"[51] probably being "Italian lovage" and another member of the species, Levisticum (officinale),[52] the parsley family, including the fragrant angelica.

[53] Trigonella faenum-graecum, a legume, having strongly aromatic foliage, and mucilaginous seeds of a peculiar odor.

[54] Shabbethai calls it Ritini.

moniac,[26] Hercules allheal,[28] bdellium,[24] box-thorn,[29] ladanum,[49] storax,[19] tragacanth[20] and all other kinds of gums.

17. When the physician desires to make an ointment for warming and softening the veins,[55] and for pains in the bones resulting from the cold weather, he gathers every hot[56] and pleasant smelling herb, grinds them well, especially if they are moist, boils them well in a kettle of water, until all of the medicinal virtue has entered the water [i.e., been extracted by the water]. Then the kettle is removed from the fire, and the liquid is squeezed, little by little (conformably with the strength of the hand) through a cloth until all of the fluid [water extract] has been squeezed out, transfers the fluid to a clean vessel and discards the exhausted drugs. The fluid is returned to the kettle and to it are added all hot oils and marrow and fat of wild animals, birds and cattle, also butter and gelatin made from cows, but the fats and marrow are not added until they are first melted by themselves and passed through a copper sieve, after which they are added to the oils and gelatin and all of them added to the water extract, and the entire mixture is heated until all ingredients become "water." This is the sign which enables one to tell when that time arrives: when the cooking kettle sounds like frying fish, the "water" is ready, and the kettle is therefore removed from the fire, and allowed to cool off somewhat, then the fat, oil, marrow and butter remaining in the sediment are removed by pressing. After emptying the kettle slowly into another vessel, the sediment is cleaned out well from the kettle and this sediment is stored, for treatment of ignoramuses and idiots, and for treating pains in the throat, neck, chest, thighs, hips, knees, the area of the sciatic nerve, and all bones which ache as a result of dampness or cold.

The expressed oil is returned to the kettle once more, and placed upon the fire, and melted wax is added to this oil, to congeal it somewhat, whereupon it becomes a salve.

18. Should the physician wish to add to this salve aromatics and healing herbs or drugs (in order to increase its strength or power and thus use it by God's grace) such as spikenard,[57] saffron,[58] cinnamon, costus root,[35] pyrethrum[59] and other such aromatics, and drugs such as galbanum, turpentine, rosin, aloes, frankincense, mastic, myrrh, bdellium, sagapenum, silphium,[43] ammoniac, Hercules allheal, and other such, he pounds and grinds the dry drugs, by themselves, very fine and lets those which can liquefy on the fire do so unmixed, then passes them through a brass sieve over the oils, adds the wax according to the usual practice, warms the mixture a little with the melted and sieved drugs. He then removes the kettle containing the oils and drugs from the fire, and lets it stand until the contents are cool enough to permit him to put his finger into the

[55] The temptation to translate this as a treatment of arteriosclerosis is great, but since Steinschneider renders this as "die Adern zu erwärmen and erweichen," and does not use the word "Pulsader," (i.e. artery) it seems wiser to render it as I have done.

[56] In the sense of "hot and cold" drugs of that era of medicine (humoral pathology).

[57] Nardostachys jatamansi of the valerian family, a fragrant plant from the Himalaya mountains. It is the "nard" of the "Song of Solomon" 4: 13, 14, and ointment made of it was very costly. "Spikenard and saffron, calamus and cinnamon With all trees of frankincense Myrrh and aloes, with all the chief spices." Shabbethai seems to have obtained part of his recipe from verse 14.

[58] The dried stigmas of autumn crocus.

[59] Pyrethron: either the dried roots of pellitory (Anacyclus pyrethrum) or the powdered flowers of Chrysanthemum cinerariaefolium, still used in ointments and as an insecticide.

mixture, then he gradually adds the [other] finely ground aromatics and perspirants, mixes and stirs them well, but does not heat them, instead permitting them to stand undisturbed, until congealed. Now he transfers them to a vessel. Thus stored, they are available to serve as a medicament, by the grace of God.

19. These are the herbs which Shabbethai the physician has tried and proved in salves:

Aristolochia (snakeroot): root (and other parts)—both varieties round and long—use two handfuls
Squill: one large, white root, cut into small pieces
Roots of: Asphodil (King's-spear)
Olyraeus*
Agrio (either stavesacre-larkspur, delphinium stavisagria, or one of the mushrooms, a genus of fungi)
Coloquinte (colocynth, "bitter apple")
Roots of: Squirting cucumber, and leaves thereof
Roots of: Eres, i.e., Kypeiron (cyperus of the sedge family—see footnote 12)
Juncoradice: one of the rush family
Roots of: Black hellebore
Roots of: Bay (laurel), and leaves thereof
Leaves of citron
Figo*
Salvia: sage
Wormwood: absinth
Aprotanon: southernwood or artemisia abrotanum
Sabina: savin juniper, a relative of the common juniper
Artemisia (an herb, similar to wormwood, a relative of southernwood)
Thromchon *
Ysop: hyssop (of all sorts)
Origanon: wild marjoram
Basilicon: sweet and lesser basil
Polion: another variety of marjoram
Chamaedrys: black hellebore
Nepeta: lesser calamint (calaminta nepeta)
Isdichdos * (Stichados)
Mentha: mint or peppermint
Simcharion *
Mellisophyllon: bastard balm, melittis melissophyllum, a relative of garden or lemon balm (?)

* Steinschneider was unable to identify this drug.

Of each two handfuls, finely ground, in a kettle of water, having twice the volume of that of the herbs.

20. These are the words about syrups and plasters upon which I have carried out research and investigation, according to my humble understanding, and the like of these I have not found for these illnesses—see above, number 208 of the Antidotarium.

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A Meeting of Two Famous Benefactors of the Library of the University of Pennsylvania—Louis Adolphus Duhring and Theodore Dreiser[1]

By HERMAN BEERMAN, A. B., M.D., Sc.D. (MED.)[2]
AND EMMA S. BEERMAN, M.A.

In 1902 Theodore Dreiser made his first visit to the University of Pennsylvania. In his account of the *Medical Diary* kept by Dreiser during this period, Dr. Richard Dowell (Library Chronicle XXXVIII, No. 1 (Winter): 92-96, 1972, University of Pennsylvania) points out that this visit may have caused some unpleasant memories while the diarist was in the process of collecting and shipping his literary estate to the University of Pennsylvania in the 1940s. This may have been due to his financial state and his frustration in trying to obtain medical treatment during his sojourn in Philadelphia.

At that time, Dreiser was suffering from neurasthenia and had settled briefly in Philadelphia where he hoped to regain his health. He put himself under the care of Dr. Duhring. He abandoned all literary activities except for a medical diary kept at the request of Dr. Duhring. This inactivity increased his tension and financial pressures. "The visit to the University of Pennsylvania therefore came at this low emotional and economic ebb." On February 5, 1903, he decided to go downtown and ask Dr. Duhring to continue the treatments on credit, but once there he could not bring himself to make the "shameful request." On February 7 he was embarrassed to complete his visit to the University of Pennsylvania to seek free medical aid at the dispensary, according to Dowell's account. The following Monday he had but sixty-two cents remaining. Again he went to see Dr. Duhring and this time confessed his poverty. Credit, however, was so grudgingly offered that Dreiser felt obliged to return to the dispensary at the University of Pennsylvania for charity treatment of an irritated left eye; but by the time he had walked to the campus, the dispensary had closed for the day. The next day, February 10, Dreiser resolutely returned and, despite his humiliation, asked for treatment. He was given an examination and a prescription, which he tried to have filled at the dispensary drug counter; but, upon discovering that the clerk was going to charge him for the medicine, he withdrew the order. On that day, when he left the campus with fifteen cents in his pocket, Dreiser could hardly have dreamed that he would someday be one of that university's greatest assets.

Reading Dowell's account and the diary itself (through the courtesy of Indiana University's Library and Dr. Neda M. Westlake, Curator of the Rare Book Department of the Library of the University of Pennsylvania) the identity of the Dr. Duhring whom Dreiser consulted is clear but the main reason for the consultation is not. Dr. Duhring was a dermatologist—in fact, the first professor in this discipline in the University of Pennsylvania—and a strong supporter of the

[1] Prepared in honor of Samuel X Radbill, M.D., for the Section on Medical History, The College of Physicians of Philadelphia.

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specialist concept of practice. The only reference in the diary to skin disease is to itching of the feet, but the prescriptions for calomel, pilocarpine hydrochlorate and arsenic bromide would suggest that Dreiser was treated by this dermatologist for neurasthenia.

In spite of this, there is more than circumstantial evidence that the famous Dr. L. A. Duhring treated Dreiser. This idea is based on: 1., copies of prescriptions for Dreiser were signed "Dr. L. A. Duhring;" 2., Dr. L.A. Duhring's use of arsenic bromide; 3., Dr. L.A. Duhring was connected with the University of Pennsylvania in 1903; 4., Philadelphia Telephone Directory, 1903.

A study of Duhring's character and philosophy would be in keeping with his undertaking treatment of other than cutaneous disorders.

Copies of prescriptions by Duhring were "signed" Dr. L.A. Duhring. It is hardly likely there were two physicians in Philadelphia named L. A. Duhring in 1903. In one of the prescriptions dated 1.16.03 arsenic drops were prescribed. Arsenical preparations were frequently prescribed at that time by either a neurologist or dermatologist. Solution of arsenic bromide was a preparation Dr. L.A. Duhring recommended. This preparation is not mentioned in a number of standard dermatology texts of the period, but L.A. Duhring on pp. 179-181 of his text *Cutaneous Medicine* (Louis A. Duhring, Part I, Philadelphia: J.B. Lippincott, 1895) stated that arsenic acts through the central nervous system and the nerves. It "has long been held in high esteem as a remedy in cutaneous medicine and acts on the skin chiefly upon the 'mucous layer of the epidermis'." The preparations used were arsenious acid, bromide of arsenic, sulfide of arsenic, realgar, and arsenite of quinine among others. Another item from the prescription suggesting that the Duhring of Dreiser's diary and our L.A. Duhring were one and the same is that all prescriptions were filled in a pharmacy at 1400 Spruce Street. This is a likely place for Dr. L.A. Duhring's patients to have their prescriptions filled if one recalls where Duhring maintained his offices. His first office was at 1226 Walnut Street and during 1872 his practice was maintained at 127 S. 18th Street, but one year later he moved to 1416 Spruce Street, down the street from the pharmacy, and in 1881 Duhring moved to 1411 Spruce Street. Even though by 1902 he was located at 3222 Walnut Street, two blocks from the Hospital of the University of Pennsylvania, he could have suggested that his patients patronize pharmacists near his old stand. According to Dr. Lawrence Parish, since our L.A. Duhring refused to have a telephone and his patients had to write for an appointment, therefore any similar name in the telephone directory for 1903 would refer to another person. Search of the 1903 Philadelphia Telephone Directory (through the courtesy of Miss Rainey) revealed three Duhrings: Reverend Herman, Otto, and Sarah, but no Louis or L.A. Duhring. In the face of this evidence, it is rather definite that Dreiser's Dr. L.A. Duhring and our Dr. L.A. Duhring were one and the same. Not to make an excuse for Dr. Duhring's ungracious handling of Dreiser, it is in order to consider the background possibly responsible for it as well as to portray the character of a man who like Dreiser found the University of Pennsylvania the object of his affection as a place of uninhibited scholarship, as a repository for his collection and as an object of his benevolence.

Duhring came from progressive and sturdy German stock. He was a member of a closely knit family. Stelwagon, Duhring's friend and associate, stated that in his earlier years Duhring "was rather quiet and retiring in his disposition, more of a student and reader than

the average boy, with a taste and talent for music; in appearance he was refined, in dress neat and even fastidious, but not to the point of foppery; with little if any tendency to athletic sports, and wholly unmixable with the rough-and-tumble type of plays and boys. In these respects the boy foreshadows the man." The impression Duhring's personality made, during the period of his medical studies and his residency in Blockley, is briefly told by one of his colleagues: "He was one of the very few well-dressed, gentlemanly men in the class. The medical students of that day were mostly a long-haired and uncouth race, wrapped in large gray shawls, wearing soft black felt hats, and swinging heavy canes." Stelwagon continues, "The few more refined ones flocked together. We were little more than speaking acquaintances during our medical course, but when we were thrown together as resident physicians at the Philadelphia Hospital, I came to know Duhring well; he was well educated, polished in manner, and thoroughly equipped for the clinical study of medicine. During the period of our residence in the hospital, he took the leadership in all that pertained to our social life. He was musical, a member of the Amphion Society of that day, and was proficient with several instruments. He organized a brass sextette among the residents which served to enliven the depressing circumstances of our surroundings. But the sextette was not merely for our own enjoyment; it was also made the means of giving pleasure to the pauper insane, for whom several concerts were arranged under Duhring's management." This sextette, as well as others of his Blockley fellow residents, consisted of men of promise, all of whom attained a gratifying measure of success, and several of them distinction; Duhring, as the others would fully and cheerfully admit, reaching the highest pinnacle and becoming known at home and abroad.

"At this time and during his student days there seems to have been, in a quiet way, a distinctly social side to Dr. Duhring's character, showing itself in fondness for theatricals, music, and the then fashionable cotillion dances. I mention this fact inasmuch as those who knew him in later years as teacher, writer, and physician might question the existence of this one-time light-heartedness. Even later, and in fact almost up to the time of his death, as a dinner-guest in the privacy of the family, the charming social side of his character, ordinarily seemingly suppressed or nonexistent, asserted itself; and his colleagues and few friends whom he thus occasionally honored were always glad to welcome his visits; especially did his charming manner and his great deference and courtesy to women endear him to the hostesses. It is believed that much of this social and lighter side of Dr. Duhring's temperament disappeared with the death of a young woman to whom he had been warmly attached, who was looked upon as his fiancee, and who died at the time, or shortly after, he left Blockley. He withdrew more or less within himself, and became more and more wrapped up in his professional work, and lived a more or less isolated bachelor life up to his death. The deaths, later in his career—1882 to 1902—of his several brothers and his sister, brought much sadness to his life; especially the death, in 1892, of his sister, Julia Duhring, to whom he was devoted, and upon whom he was largely dependent for sympathy and affectionate companionship, was a blow from which he scarcely recovered. His great affection and depth of feeling for her were emphasized in his will, in which he stated: 'I order and direct that my executors shall have my remains interred alongside of my sister Julia.' In later life he seemed almost to have become a misplaced being of the past, being much alone, having practically no

confidants and no intimates. His fine and striking aristocratic appearance, within the last years, his rather full grayish-white beard, seemed to emphasize even more his individuality and isolation. Indeed, he seemed to be one entirely apart from the crowd—the hurly-burly manner of most of the men of the present and past decades, their athletic tendencies, their frequently talkative assertiveness, exchange of jokes, their chaffing, their not infrequent afternoon clinking of glasses, and all too often questionable and risqúe stories, were entirely foreign to the taste and temperament and pure thoughts of this exceptional man. In the presence of such he seemed entirely out of his element and held himself aloof; but in the quiet discussion of affairs, in the exchange of amusing incidents of travel, in the exchange of views regarding the general literature of the day and of the past, and in dealing with medical subjects, especially when pertaining to his own favorite branch, he was at his best, and the superiority of his trained mind over those of his contemporaries soon became evident. Although mild and noncombative, he had, as his colleagues and acquaintances soon learned, the courage of his convictions, and was well able to sustain his views and opinions; for, while tolerant, he did his own thinking, and the correctness of his deductions and conclusions was usually admitted. He had, it is true, his peculiarities—who of us has not?—but his peculiarities were not such as affected or offended others, but rather the kind that seemed inconsiderate of himself. One sees in this brief review of his personal life and character a striking individuality. . ."

Furthermore, Parish points out that, "In the early years of this century, Duhring did not often accept new patients." In his later years, Duhring became increasingly eccentric. He constantly complained about money and stinted greatly on himself. Whenever he went to visit his relatives in Chestnut Hill, he would bring a ten-cent bag of candy and present it to the family with much flourish.

". . . His house was in terrible repair near the end. He begrudged himself even heat. Mrs. Stelwagon recalls visiting him and finding him reading with one candle and wearing his threadbare overcoat. The furniture had begun to break and his bed was supported by three wobbly legs, while a pile of books sufficed for the fourth."

Toward the end of his life (1908) Duhring became rather distant and his practice dwindled. He paid little attention to dermatology, ". . . his main interest being his investments. He lost interest in his clothes and in his personal comforts. His wardrobe was shabby and his furniture was falling apart. His health was failing. He would receive one more acclaim, the honorary doctor of laws from his alma mater in June 1912" (Parish, pp. 81-82).

(Parish, p. 78) "In spite of these eccentricities, Duhring's students remembered him as a gentleman of the old school, a professor who was dignified, yet kindly and humble . . ."

Since the autopsy showed arteriosclerosis and a constricting band over the ileum which seemed, directly or indirectly, to be the cause of death, the arteriosclerosis may have played a role in his change of character.

One might excuse the curt or cursory handling of patients by this great dermatologist because he had had a life filled with loss of loved ones and was himself subject to a neurasthenic tendency. However, Duhring knew better since his philosophy expressed to the 1907 graduating class in medicine at the University of Pennsylvania was: "Keep in mind the practical value of that delicate quality called tact, the power of adapting one's words or actions to circumstances. For the individual who possesses its virtue,

the rougher paths of life are made comparatively smooth and pleasant. Like many other desirable qualities in which one may be deficient by nature, it may be cultivated, and its acquisition is well worth the effort."

Dreiser's contact with Duhring still raises the question whether Duhring, the promoter of the specialist idea, was treating anything except cutaneous disorders. Perhaps the itching of the feet was the contact with Duhring, but Duhring, ever the practitioner, and one who did not care if the world thought him incompetent in other fields, could not resist the challenge afforded him by Dreiser's neurasthenia. This idea is based on Duhring's own words: "Pursue the kinds of work you are best fitted for, whether in some particular line or as general practitioners. Permit me to remark that there is no field more estimable, honorable, and advantageous than that [which] the all-round medical man occupies . . . . The field of the general physician and surgeon is everywhere on the face of the globe. His services are always in demand in the upper walks of life as well as among the poor. In rank he is the peer, nay the superior, of the specialist. He literally controls the situation, for without him the latter cannot exist.

"The tendency of the day is towards specialism, but take care my friends, that you follow not heedlessly with the throng . . ."

Speaking to the graduating class of 1907 of The School of Medicine, University of Pennsylvania, Duhring noted that "a specialty is a department or branch of medicine in its widest sense; it is what a limb of the tree is to the trunk. Without the trunk there can be no limbs or branches; without medicine there can be no legitimate specialties. To be genuine, a specialty must be supported by a full understanding of the principles and practice of medicine. No medical man is fitted to be a special observer who is not qualified in general medicine, and under this head must be included general pathology. Without a knowledge of the latter science, especially in its practical bearings, we are wholly unfit to practice it. It will, therefore, be noted that much is required of the physician before he can be considered a specialist. The pursuit of a specialty incites to study and research. It tends to reach new paths and fields. It opens vistas of knowledge that were not before thought of. Under culture, the subject grows and develops, in some instances, it would seem almost without limitation."

Duhring's love for the University of Pennsylvania is legendary. Aside from his legacy, other indications of this devotion to his alma mater are found in the writings of Duhring and his colleagues. Alembert Winthrop Brayton of Indiana, in his appraisal of Dr. Louis A. Duhring, the American dermatologist, stated, "But he loved the University of Pennsylvania as a son his father, and to it he devised his notes and manuscripts with directions that they be edited by an expert and published." His bequests in monies to the University Library, the Hospital and The College of Physicians of Philadelphia are well known.

In his valedictory address (1894) Duhring noted: "I trust, gentlemen of the classes of 1894, you will ever consider it a privilege to have studied under the auspices of the University of Pennsylvania. It is hoped that you may contribute much to her reputation and future prosperity.

"But above this, prize zealously the good name of the great institution of learning which is inscribed on the diplomas you have just received. Through the years to come remember with warmest feelings the University of Pennsylvania. The name, in itself suggestive of dignity and strength, stands as a symbol for learning, knowledge, and enlightenment in their broadest acceptance. The Univer-

sity of Pennsylvania is established upon lines so wide and far-reaching that it is an integral part of the mental life of the Commonwealth. It is verily a State University. Its foundation rests upon the rock of unbounded faith in the development of the mind and all that pertains thereto; upon the belief that advanced education is a blessing for the people, for the masses as well as for the favored few. . . .

"It is a priceless boon to have been graduated from this venerable and renowned institution upon the pages of whose archives are to be found so many worthy and illustrious names."

The University has not been remiss in reciprocation of this regard for it by one of its stars. We now have the Duhring Laboratories of the Department of Dermatology. When the New University Library was built, the old building was given to the Fine Arts School. In 1964 the remodelling of the Duhring Stacks was completed, and the building is now known as the Duhring Annex or Duhring Building.

The Writing of American Medical History before Professionalization[1]

By WHITFIELD J. BELL, JR.[2]

Between 50 and 35 years ago a series of events occurred which may fairly be regarded as the beginning of the professionalization of medical history in this country. Until that period all medical history was written either by physicians with an avocational love of history, or by laymen (professional and amateur historians) interested in the history of medicine and public health. Medical history was not taught in the universities, and its individual practitioners worked alone, without criticism or encouragement, almost without appreciation. This is the normal pattern of development of a particular academic discipline. Not until the turn of the century were medical history clubs formed—at Johns Hopkins in 1889, at The College of Physicians of Philadelphia in 1905; but, they benefited only a few, their membership being necessarily limited to a single institution or locality. Until the second quarter of this century nowhere could a scholar be supported in the career of medical historian.

In the 1920s and 1930s, however, all this began to change. Dr. Francis R. Packard's sumptuously designed and printed *Annals of Medical History*, which first appeared in 1917, was flourishing. In 1925 the American Association of the History of Medicine was founded, though its meetings, conducted "happily, if none too seriously," were "for some years . . . informal, the programs limited and attendance largely restricted to those living nearby or coming to the meetings of the Association of American Physicians" (1). In 1932 the Institute of the History of Medicine was established at Johns Hopkins University, the next year it began to publish its own *Bulletin*, and a few years later the Institute and the Association joined in a mutually advantageous agreement that brought the *Bulletin*, edited by professionals at the Institute, to the members of the Association, then overwhelmingly amateurs. There was by now sufficient serious interest in medical history that a commercial publisher issued between 1930 and 1939 a series of 22 historical handbooks on medical specialties, like anatomy and physiology, and the history of medicine in particular countries. It may be taken as an indication of the state of the historiography of medicine in the United States that, though *Clio Medica* included volumes on the medicine of Egypt and Persia, Japan, Russia, Canada, and the American Indian, there was none on the United States. Fifteen years after these "booklets" began to appear, the *Journal of the History of Medicine* was launched, in 1946, originally, but prematurely it must be admitted, as a private enterprise. Thus by the mid-40s, an increasing volume of serious medical historical study was being carried forward in a professional and critical spirit created by the Institute, the Association's meetings and the new journals.

Another 15 or more years were to pass, however, before medical history achieved full status in many universities besides Hopkins. Here and there at-

[1] The original version of this paper was the Beaumont Lecture read to the Beaumont Medical Club in the Yale University School of Medicine, March 29, 1974.

[2] Librarian, The Library of the American Philosophical Society, 106 South Fifth Street, Philadelphia, Pennsylvania 19106.

tempts at formal instruction were made; nearly all faltered and failed. Few institutions were hostile, most were simply indifferent to the possibilities and benefits of the subject. The *Bulletin* in these years abounds in reports, surveys, editorials and pleas on the place of medical history in the curriculum. They have a remote and quaint sound today, when medical history is well and firmly established as a profession. Departments of medical history flourish at Yale, California, Minnesota, Duke, and other places; specialists in medical history are to be found in graduate history departments along with diplomatic, constitutional, and intellectual historians; and some offer courses to large and appreciative classes of undergraduates. In Philadelphia, after many years of work and hope, a full time professor of medical history has been added to the University of Pennsylvania faculty.

Scholars are not always the best informed persons about the history of their respective specialties; and the time may arrive when a generation which did not experience medical history before its age of professionalization will think that there were always chairs, journals, departments, conventions, and research grants. They may even imagine, as they pore over the latest printouts of statistical data, that there was no worthwhile medical history before the professors wrote it.

The fact is that there was a good deal, just as a good deal of sound general history was written in the United States before the American Historical Association was formed in 1884, and a good deal of sound literary history by persons outside the Modern Language Association. I propose to illustrate the point with examples drawn from the considerable body of writings about the history of medicine in the American colonies and union.

It must be admitted that most general narratives of American history, written since 1925 as well as before, usually completely ignored disease, medicine, and public health. George Bancroft and Richard Hildreth, for examples, who set the pattern for the writing of American history in the nineteenth century, had not the slightest interest in social and economic history; and Edward Channing had hardly more. But Henry Adams might have been expected to include, or at least to mention, medicine in those brilliant chapters on the national "intellect" with which he began and ended his *History of the United States* (1889-90); but he did not. The Philadelphia yellow fever of 1793 was admitted by John Bach McMaster into the *History of the People of the United States*, which is usually considered the first "social" history of the country; but McMaster does not mention the cholera epidemic of 1832; medical schools, public health, or Daniel Drake appear in none of the indexes of his eight volumes; while anesthesia is mentioned only in a list of American achievements, together with the McCormick reaper, Howe's sewing machine, Hoe's rotary press, and the vulcanization of rubber (2). Van Wyck Brooks sometimes discussed science in *The Flowering of New England* (1936), but never medicine; while Charles and Mary Beard, though alluding to the subject in *The Rise of American Civilization* (1927), hardly realized how much they had scanted it until they read Richard H. Shryock's *Development of Modern Medicine* in 1936. The attitude of general and professional historians was that of Dean Herman V. Ames, the distinguished constitutional scholar of the University of Pennsylvania, to whom Shryock proposed American public health as the topic for his doctoral dissertation. "An interesting topic, Mr. Shryock," was the assured reply, "but not history" (3).

Though medicine found no place in the writings of professional historians

(who, as Shryock later observed, defined history as consisting only of what they wanted to write about), it was included in many histories by non-professionals, who often took a broader view of the past than the professors. Rarely admitted into the professionals' narratives, science, manners and customs, and medicine were studied by the amateurs, who were the first social and cultural historians. The Reverend Dr. Samuel Miller, a New York clergyman, celebrated the opening of the nineteenth century with a sermon on the progress made in the eighteenth; expanded into two volumes and published as *A Brief Retrospect of the Eighteenth Century* (1803), it contained a chapter of 126 pages on medicine, most of it written by the author's brother Edward, a physician. In the latter part of the nineteenth century chapters on medicine were usually found in large-scale cooperative works like Justin Winsor's *Memorial History of Boston* (1880-81) and Scharf and Westcott's *History of Philadelphia* (1884) and in countless town and county histories.

The period to which Winsor and Scharf and Westcott belong produced a rich and varied historiography, especially by non-academics and on historical social topics. Andrew D. Mellick of New Jersey, compiling a family history from his paralytic's couch, quickly realized that his ancestors were involved in the life of their times at many points, and instead of a breeding chart, wrote what is in effect a social history of northern New Jersey, in which medicine received its due as well as war, religion, and farming (4). And in 1900 Edward Eggleston, author of *The Hoosier Schoolmaster*, clergyman, novelist and, though a non-academic, president of the American Historical Association, published as the second volume of his *History of Life in the United States*, a book with the suggestive interpretive title of *The Transit of Civilization*. The chapter on "Medical Notions at the Period of Settlement" opened with references to Harvey, whose treatise on the circulation of the blood was published in 1616, "while Virginia was yet in its birth throes," and to Harvard, whose students in 1699 still debated the question of circulation (5). As the book's title promised, Eggleston presented European and American medical knowledge and practice in their intimate relations.

Despite Eggleston and a few others, however, most of what was written about the medical history of the United States in the nineteenth century and before the present age of professionalization, was by a particular kind of amateur—not laymen historians, but physicians. They worked out the major outlines of the history of medicine in the American colonies and young states; they identified most of the outstanding medical figures and institutions and collected and published their biographies and histories; they found, preserved, and published many of the sources for American medical history. We can do little more than estimate the amount and quality of their work until the bibliographer appears who will search medical and local historical publications for the scores of chapters and essays that lie neglected and unknown in them.

The motives and occasions for these publications varied. Not a few biographical accounts were called forth by the death of a distinguished colleague or predecessor. Such were Benjamin Rush's "Account of the late Dr. John Morgan" (6) and many of the sketches abstracted in James Thacher's *American Medical Biography* (1828) and its successor volume by Stephen T. Williams (1845). Anniversaries of institutions frequently were marked by the publication of permanently useful histories such as Joseph Carson's on the centennial of the Medical Department of the University of Pennsylvania (1869), W. S. W. Ruschen-

berger's on the centennial of The College of Physicians of Philadelphia (1887), Eugene F. Cordell's *Medical Annals of Maryland* (1903), which was undertaken for the 100th anniversary of the Medical and Chirurgical Faculty of Maryland. One of the best of these anniversary addresses, original, thoughtful, informative, as one would expect, was William H. Welch's essay on "The Relation of Yale to Medicine," delivered at the bicentennial of that institution in 1901 (7). Needless to say, command performances do not always have a happy issue; but when the author is able, interested in his task, and has time to complete it properly, the results are gratifying. That such occasions continue to produce good work is demonstrated by Henry R. Viets' *Brief History of Medicine in Massachusetts*, written for the tercentenary of that commonwealth in 1930, and by George W. Corner's *Two Centuries of Medicine* (1965), which appeared on the occasion of the bicentennial of the first medical school in America.

Introductory and farewell addresses to their students and presidential addresses to their colleagues afforded physicians additional opportunities to develop historical themes. Such was John B. Beck's address to the New York State Medical Association in 1842 on the state of medicine in the American colonies (revised in 1850 and recently reprinted) (8) and Holmes' reminiscent lecture to his last class on his early teachers (9).

Ebenezer Alden was typical of these industrious but forgotten medical historians. A lifelong resident of Randolph, Mass., he had a strong love of antiquarian and genealogical pursuits. At a time when bibliophiles were few, he made a choice collection of books on New England history. He wrote several biographical memoirs, an excellent family history, and, in a long series of articles in a local paper, a history of the towns of Braintree and Randolph. He was a member of the American Antiquarian Society and of the New England Historic Genealogical Society, to whose library fund he made a generous contribution; and he took an active part in the formation of the American Statistical Association. In 1838 he wrote a history of the Massachusetts Medical Society and in 1853 the "Early History of the Medical Profession in Norfolk Co.," which was printed in successive numbers of the *Boston Medical and Surgical Journal.* (10).

This history is primarily a collection of biographical annals, which Alden gleaned from church and town records and collected from postmasters, other physicians, descendants, and oldest inhabitants. Within each town, the physicians are listed in chronological order. Except that the author noticed the union of medicine and the ministry in early New England, there are no generalizations. But, aware of the popular disesteem for the profession, Alden asserted that the best way a physician might "sustain the reputation of his profession," in addition to "his own virtuous example," was to record the good deeds and perpetuate the memory of the virtues of physicians who had preceded him in the profession. This appeal and argument was frequently made by other physician-historians.

Not a little historical research and writing—and not only in medicine—has been undertaken also, especially by nonprofessional historians, to prove that a particular individual, institution or event antedates another. The search for priority has its amusing aspects and consequences—Professor Edward P. Cheyney was required to justify 1740 as the founding date of the University of Pennsylvania at least partly, it seems, by the scheduled inauguration of a bicentennial fund-raising campaign that could not be postponed 13 years to the hitherto accepted date (11). But such searches also have the effect of bringing to light masses of supporting documentation,

which is thereafter available for other purposes. Investigations made in 1843 and again in 1911 into the date of founding of the American Philosophical Society, for example, elicited practically all the documents on the Society's origins and early years that have been found, so that what was undertaken as a legal brief has become a principal source for historians of early American science (12). The controversy between supporters of Crawford W. Long and William G. Morton as the true "discoverer" of anesthesia has produced a mass of useful information, as well as some philosophical statements on the meaning of "discovery." The advocates of the Pennsylvania Hospital and of Old Blockley (now the Philadelphia General Hospital) for the distinction of being the first hospital in the city have marshalled a good deal of useful data on early medical practice (13); as did Dr. Byron Stookey, who undertook to show that the Medical Department of King's College in New York should be considered the first in America because it had six professors from the start while Philadelphia had only five (14).

There were, of course, more basic motivations for inquiring into the history of medicine. Thoughtful persons of every profession and of none may be curious about the past, especially the past of communities, institutions, and professions in which they have lived and played an important part. How, they ask, did things get this way? What, if anything, they wonder, has the past to tell the present? Benjamin Rush's comparison of medical practice in 1805 and 1760; Samuel D. Gross's thoughtful and entertaining lecture, *Then and Now*, and William W. Keen's "Sixty Years of Surgery" were each an effort by a distinguished physician to review the changes they had seen in a long lifetime, to account for them, and to suggest what direction events and developments might take in the future (15). Each essay, because of its autobiographical character, is also a historical source of some authority. On the other hand, Dr. Caspar Morris and Dr. George W. Norris of Philadelphia apparently had no other reason than intellectual curiosity for collecting data on the history of medicine in early Philadelphia (16). The latter collected many original materials, some in private hands, wrote up his account and, for additional recreation, printed off some 50 pages of the narrative on a handpress he enjoyed operating. A busy practice prevented Dr. Norris's doing more, and he died with the work unfinished. His son published it in 1886.

Histories and retrospective views like these had the special merit to the profession in the nineteenth century that they might enhance the popular image of the profession with their accounts of heroic doctors and great events. Most professions are usually suspect by the people, who have a sound apprehension that associations of men of the same business or trade are in some measure conspiracies against the public good. In the middle of the nineteenth century the medical profession was especially open to suspicions and charges of this nature; and thoughtful doctors, therefore, were particularly pleased with whatever presented them in more favorable light. "The present publication," Dr. Gross confessed of *Lives of Eminent American Physicians and Surgeons of the Nineteenth Century*, "owes its origin to a desire . . . to popularize the profession, and to place its services and claims more conspicuously than has yet been done, before the American people" (17). Dr. John Bell, who contributed a chapter to Gross's book, said much the same: doctors, he wrote, should recall the memory of great doctors, partly to "impress our fellow-men, in all the walks of life, with our true position and aims" (18). Though Gross's *Lives* was perhaps the

most impressive single volume of medical history published in the second half of the century, it is doubtful that it fulfilled this purpose: the sale was poor, and Gross grumbled afterwards that he lost $200 on the undertaking (19).

No pattern is discernible in American medical historiography in the century and a half when only amateurs were writing. One senses an accumulation of data, but no forward thrust of knowledge or interpretation; one book seems much like another. Perhaps that is because nonprofessionals start their researches where they will, not, as is often the case with professionals, where a colleague has stopped. Even attempts to generalize on the product of those years are hazardous. Yet one can at least list and characterize some of the notable achievements.

The earliest period to about 1810 opens in 1769 with an address on the general history of medicine by Dr. Peter Middleton of New York; Dr. W. B. McDaniel, 2d, has called it appropriately the beginning of medical history in America (20). Not until after the establishment of independence did an American physician give attention to scientific and professional developments in the United States—Benjamin Waterhouse of Massachusetts in 1792, David Ramsay of South Carolina in 1801, Benjamin Rush of Philadelphia in 1805, the younger Josiah Bartlett of Massachusetts in 1810 (21). The latter two devoted entire essays to American developments. Bartlett's well organized and well written *Progress of Medical Sciences in . . . Massachusetts* treated in essentially chronological order smallpox, medical societies, military medicine in the Revolution, the Massachusetts Medical Society, its pharmacopoeia, the Harvard Medical School, its library and museum, publications, the Humane Society, vaccination, and public health. Rush, in a comparison and contrast of medicine in Philadelphia in the days of his apprenticeship and the years of his maturity, commented on climate, diet, diseases, medical thought and practice, giving details from his personal knowledge and experience, and offering reasons for the changes.

With the increase in the number of medical schools and societies after 1810 came increased calls for addresses and lectures on formal occasions (22). Often the speaker regarded his own subject or institution as standing latest in a long chain of events. Dr. Thomas Sewall, for example, took the occasion of the inauguration of the Medical School of Columbian College in the District of Columbia in 1825 to present a scholarly survey of medical education in America, past and present, relating it to the larger influences of climate, density of population, and the republican principles of the nation (23). Sewall spoke at a time when the semicentennial of American independence elicited a number of reminiscences and inquiries about the nation's origins. Medicine no less than political life was examined; one of the principal memorials of the period was James Thacher's *American Medical Biography*, which not only told the history of many old physicians but linked their lives to the founding of the nation and the events of the Revolution. Two biographies of major proportions appeared also in these years—Samuel Miller's life of his brother Edward, prefacing the latter's collected works; and John McVickar's life of Samuel Bard, of the Medical School of New York (24).

The years from 1865 to the end of the century were distinguished by a confident nationalistic spirit, tested by the Civil War and dramatically displayed at the Centennial Exhibition in 1876 and its scores of satellite celebrations throughout the country. Samuel D. Gross's *History of American Medical Literature* (1877) was a centennial publication; and so were the four essays on

developments in American medicine that were commissioned by the *American Journal of Medical Science* and later published in a small volume entitled *A Century of American Medicine* (1876). And also in the centennial year the tireless medical historian, Dr. Joseph M. Toner, of Washington, who had already published a volume of *Contributions to the Annals of Medical Progress*, compiled two more collections of historical biographical data—*The Medical Men of the Revolution*, read to the Alumni Association of Jefferson Medical College, and an *Address on Medical Biography*, delivered to the International Medical Congress held during the Centennial itself (25).

But historians, including medical historians, were beginning to require source materials and more exhaustive inquiries based on them. Although no one then or since assembled a comprehensive documentary history of early American medicine, comparable to those of Sparks and Force in political history, several physician-historians provided source materials of a more limited extent and nature. Sylvester D. Willard transcribed and edited the records of the Medical Society of Albany, with biographical sketches of the members (26). Stephen W. Wickes of New Jersey did the same for the records of the Medical Society of his state. As editor of the *Medical Society of New Jersey Transactions* since 1861, Wickes customarily included items of historical interest in the journal. Perhaps stimulated by the observance of the Society's centennial (27), perhaps spurred by the forthcoming centennial of the nation, Wickes in 1875 began to publish the minutes to 1858 in a stout volume of 737 pages. This so engaged his interest in the old doctors, institutions, conditions of practice, laws and policies, that Wickes undertook to write a *History of Medicine and Medical Men in New Jersey*, which appeared in 1879. It was two-thirds biographies, but included many documents as well, and it remains a useful repository of historical data not only on New Jersey but on the country as well. A similar work, though not obviously inspired by the national anniversary, was Dr. Thomas G. Morton's *History of the Pennsylvania Hospital* (1897), a detailed work based on the Managers' minutes, steward's accounts, treasurer's reports, and a vast archive of original manuscripts which are still preserved at the Hospital. Eugene F. Cordell's *Historical Sketch of the University of Maryland School of Medicine (1807-1890)* (1891), Thomas F. Harrington's *The Harvard Medical School: A History, Narrative and Documentary* (1905), John R. Quinan's *Medical Annals of Baltimore* (1884), and the more extensive work it inspired, Cordell's *Medical Annals of Maryland* (1903), were also filled with authoritative source materials.

As the new century opened, two works appeared whose titles promised to present all the history of American medicine—but James G. Mumford told the story in terms of outstanding figures, and Francis R. Packard warned his readers that his *History of Medicine in the United States* "should be regarded rather as a series of essays and compilations, than in the light of a continuous historical work" (28). These years even saw a few thoroughly commercial undertakings financed as "mug books." One of these was Dr. Frederick P. Henry's *Standard History of Medicine in Philadelphia* (1897) which its editors kept from being offensively commercial and which would be more widely used if the publisher, possibly in retaliation, had designed the book with care, proofread the text, and given the whole an index.

The quarter century from 1900 until the formation of the American Association of the History of Medicine was influenced largely by William Osler. With a keen eye for character and detail, and a

deft, allusive style that linked medical history with the prevailing literary culture, Osler presented a gallery of famous and forgotten figures in European and American medicine to the Johns Hopkins Medical History Club and elsewhere in the 1890s and early years of the century. These sketches—of John Y. Bassett, Oliver W. Holmes, Elisha Bartlett, William Beaumont, William W. Gerhard, and others—were collected and published as *An Alabama Student* in 1906. As historian and biographer, bibliophile and patron of libraries, a man of broad humanistic learning and sympathies, Osler set an example that others followed—one thinks in this place of Harvey Cushing, Walter R. Steiner, and William Pepper—even to a second and third generation which never knew him (29).

All these historical studies, it will have been noticed, were essentially biographical and institutional; none was of a medical concept or specialty. Although S. Weir Mitchell addressed the Congress of American Physicians and Surgeons in 1891 on the "Early History of Instrumental Precision in Medicine," physician-historians in general appear to have avoided such topics. The prize of $400 which Dr. Abraham Jacobi twice offered for a history of American pediatrics went unclaimed both times (30).

Few amateurs' contributions to medical history addressed themselves to significant or complicated questions. The same, of course, could be said of much general history. But just as general history enlarged its views, bringing more kinds of problems and materials under examination, so medical history broadened in the practice of nonprofessional and professional historians alike. One has only to compare the latest issue of the *Bulletin of the History of Medicine* with any issue of 25 years ago; or think of the work of Ernest Caulfield (31).

In the preface to his vigorously written but now usually overlooked *Narrative of Medicine in America* James G. Mumford explained that his book (32) was

> not a systematic history; it is a narrative of medicine and doctors. My object has been to take some of the conspicuous American physicians of each era in their proper sequence, to tell the story of their lives and their doings, and thus to illustrate the whole by a series of pictures, as it were.

This emphasis on biography was a noticeable characteristic of medical history. In Genevieve Miller's *Bibliography of Medical History of the United States and Canada* in the 21 years from 1939 to 1960, biographies account for more than a third of the titles—more than the combined entries for diseases, education, professional history, and public health. As late as 1931, when he prepared the second edition of *History of Medicine in the United States*, Dr. Packard wrote (33) of his own and others' work that it was "necessarily more or less confined to the story of the development of institutions and the narration of the lives of men who have influenced the medical practice and thought of their time."

The reasons for the appeal of the biography are not hard to recognize. Biography is the first step in historical writing; it is the taxonomy of history; one must identify the players. Besides, a single life has a unity that topics do not possess; one can pursue an individual more easily than an idea; and therefore biography may seem to many beginners easier and more satisfactory to research than, for example, the history of quarantine, popular opinion about doctors, or their role in American society. Perhaps another reason why doctors in particular liked the biographical approach is that, as men who, at least until recently, work much alone, it was congenial to their temperament and to their view of themselves as individuals who bring comfort

to the stricken, wrest life from death, and are defeated at last only by "the Conqueror of Conquerors" (34). Medical biographers accordingly were drawn in disproportionate numbers to the champions and discoverers—Rush, McDowell, Morton, and Reed; taking little interest in ordinary doctors, failed physicians, and those who questioned or resisted the received doctrines of their time and ours. One exception there was: a historian could always write up the careers of notorious quacks, but that was because the quacks were too absurd to challenge the profession and in fact served as foils to emphasize the excellencies of regular practitioners and regular medicine.

If the doctors emphasized the histories of individual physicians, institutions, and localities, they also emphasized the beginnings. The early years, especially if they lie in the eighteenth or early nineteenth centuries, have a strong appeal, partly because those years are the great days of the nation's origins, partly because thoughtful persons are intrigued by the way an idea becomes an institution, and how small, impecunious, faltering institutions may survive to become powerful and self-confident. The result, however, is that we have scores and hundreds of monographs on the colonial period, but not very much on the last century. It is significant that the omission is being supplied by professional historians like Charles E. Rosenberg, Barbara G. Rosenkrantz, Thomas N. Bonner, and Russell M. Jones.

To most historians, even professionals, study of the early years had the additional practical advantage that the source materials were more readily mastered. A few hundred letters and half a dozen pamphlets are all that survive of John Morgan's, and all that one needed, to write his biography; but Simon Flexner's biographer must expect to examine one hundred thousand letters or more in a single depository. Richard H. Shryock wrote an excellent survey of *Medicine and Society in America, 1660-1860* (1960); he did not continue it, he told me, because there are more materials on the third century than any one person could read.

Most amateur historians of American medicine, especially those influenced by the self-confident nationalism of the early nineteenth century, believed unabashedly that they were chroniclers of man's progress. "It has been remarked," wrote Dr. Josiah Bartlett as he surveyed the development of medical science in Massachusetts to 1810, "that more professional knowledge is at this time attainable [at a medical school] in a single season, than was known to Hippocrates, Galen, and their successors till the beginning of the 18th century" (35). The sense of accumulated knowledge, of developed skills was implicit in all, expressed in most, historical writing on medicine in America. Indeed, medicine did advance marvelously in the eighteenth and nineteenth centuries, and no one could compare his own day with former ages without acknowledging change and progress. In the United States there was the additional conviction that the progress was owing to the nation's republican institutions. "In this country," wrote Dr. John B. Beck at mid-century (36),

> the history of medicine derives an additional interest from the striking illustration which it presents of the influence which our peculiar form of government exerts over the character and progress of science. It is unquestionably true, that our medicine participates largely of that spirit of independence, which characterizes the civil and political institutions of our country.

These remarks about the amateur historians of American medicine, I realize, may sound to many as suspiciously defensive, crediting those historians with more than they deserve. Surely their works need no apology or defense

from me. At least those historians brought to writing about the eighteenth and early nineteenth centuries one advantage we can never possess—they were closer to that period and better able to get information from children and grandchildren, as Osler did for his sketches of William Wood Gerhard and the Alabama Student, and A. B. Crosby for his "Medical History of New Hampshire," which is filled with anecdotes of the old doctors, details of the first dissection in the state, conditions of obstetrical practice, and notes on the founding of the Dartmouth Medical School. Those early historians, furthermore, were probably as well informed as we—only about different things: we know about carburetors, they knew about spavins, and both brought their information intelligently to bear on a particular problem in locomotion. They were, in short, quite as intelligent and thoughtful as their descendants, who are apt to forget that intelligence probably exists in about the same amount in each generation.

Despite what I have said about the limitations of much amateur writing on medical history; despite an offputting style (simple, not sociological or scientific English) and an indifference to footnotes (as though footnotes were guarantors of scholarly excellence!), we should not conclude that all such writing was conceived on narrow lines. Holmes knew (37) as well as we that the medical practitioners of Massachusetts

> brought with them much of the knowledge and many of the errors of the Old World; they have always been in communication with its wisdom and its folly; it is not without interest to see how far the new conditions in which they found themselves have been favorable or unfavorable to the growth of sound medical knowledge and practice.

He expressed the same idea more memorably at the opening of his discussion of "Changes of Conditions and Habits affecting the Public and the Profession" in Additional Memoranda to Green's chapter on medicine in Boston in Winsor's *Memorial History:* (38)

> To write of 'Medicine in Boston' is not unlike writing of the tides of Boston Harbor. Boston is a fraction of the civilized world, as its harbor is a part of the ocean. In both we must expect to find general laws and phenomena, modified more or less in their aspects by local influences.

What role in modern American medical historiography have the best writings of nonprofessional historians, past and present? Can practitioners in the tradition of Thacher, Beck, Herbert Thoms and Samuel X Radbill make a contribution to medical history equal to, though different from, that of professionals like Henry E. Sigerist and Owsei Temkin? Or must there be a permanent distinction and separation between the professional and the amateur, the general and the local historian, the historian and the antiquarian? Must medical history suffer, as I believe general history has suffered, by professionalization that permanently alienates one from the other?

I hope it will not; indeed, I believe it need not. Nonprofessionals of all historians are the best acquainted with local sources and the uses of local records; they have assembled detailed information about physicians, local institutions, and conditions; and these are precisely the kinds of data required by the younger professional historians, who are trained to compile and interpret such masses of data. Who, for a prosopographical study of the medical profession in Massachusetts, for example, would not begin by carding the rolls of the Massachusetts Medical Society, the biographical dictionaries of Thacher and Williams, and notes so arduously gleaned and clearly set forth in such local histories as Ebenezer Alden's of Norfolk County?

There is in fact unmistakable evidence that young scholars, unimpressed by professional distinctions and prejudices, are making use of the researches of local and amateur historians. Such exchanges should be encouraged, for the use of local data and specific examples can only enrich and sharpen the general narratives.

If the work of amateur historians can promote the professionals' understanding, the latter's writings equally can inform the former. In professional publications the amateur will find suggestions, hypotheses, methods, and models which, if he keeps them in mind, will reveal the significance of his data. Thus the nonprofessional historian will be directed by his professional colleagues to questions of general significance, to histories of other places and institutions, to bases for comparison enabling him to see his own story in more proper perspective. In short, general professional historians cannot fail to profit from the research of nonprofessionals, and amateurs cannot afford to ignore the writings of scholars like Shryock, Lloyd G. Stevenson, George Rosen, and Charles E. Rosenberg. Nor should either group disdain to instruct the other.

The Section on Medical History of the College of Physicians of Philadelphia, Yale's Beaumont Medical Club, and every similar group, it seems, offer opportunities for such exchanges and mutual instruction.

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The Anatomical Lectures of William Shippen, 1766[1]

By JOHN B. BLAKE, Ph.D.[2]

On November 14, 1765, William Shippen, Jr., delivered his first lecture as the first professor of anatomy in the first American medical school. It was a moment for which he had long been preparing.

Son of a prominent Philadelphia physician, William Shippen, Jr., was born October 21, 1736. He was educated at a boarding school in Nottingham and at the College of New Jersey before becoming, in 1754, an apprentice to his father. Voyaging to England in 1758 for further medical study, he followed the surgical practice at St. Thomas's Hospital in London, attended the midwifery lectures of Colin MacKenzie, and in October, 1759, began studying anatomy with William and John Hunter. For several months Shippen spent long hours at dissection and at lectures, even participating with John Hunter in experimental investigations on animals. Although Shippen later studied theory at Edinburgh, graduating with the M.D. degree in September, 1761, the Hunters were undoubtedly the paramount influence in the young man's European experience. Returning to Philadelphia in 1762, Shippen began offering lectures on anatomy in the fall. In 1765 John Morgan presented his famous *Discourse* proposing the establishment of a medical school. Morgan became the first Professor of the Theory and Practice of Medicine and Shippen's appointment as Professor of Anatomy and Surgery followed (1).

Among the students in the first year of the new school was a young man from New Jersey, Jonathan Elmer. Born November 29, 1745, he was educated privately until he went to the College of Philadelphia to study medicine in 1765. With nine other students, he received his M.B. degree in 1768. Elmer also took the M.D. in 1771. After his graduation, Elmer began practicing medicine in New Jersey. Later he played an active role in politics, serving in both the Continental Congress and as a Senator from New Jersey in the first Congress under the Constitution. In 1787 Dr. Elmer was chosen President of the New Jersey Medical Society. He died on September 3, 1817 (2).

As a medical student, Elmer kept careful notes of his professors' lectures. His notes of Shippen's second course, begun in 1766, are now in the National Library of Medicine. They fill a small leather-bound volume (3) seven and a half inches high in a neat hand identified on the flyleaf as "Ex Libris Jonathani Elmer. Ipsomet manu scripsit."

The contents of the successive lectures, insofar as Elmer reports them, are as follows:

Lecture	1	Anatomy [Definitions]
	2	Of the blood
	3	Of the arteries & veins
	4	Of the lymphatics Of the glands

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	5	Of the muscles and tendons
	6	Of the nerves Of the cellular membrane
	7	Of the bones
	8	Osteogonea
	9	Of the cartilages & ligaments
	[10-39]	[No notes]
	40	[Viscera in the trunk]
	41	Of the pleura Of the lungs
	42	Of the heart
	43	Of the diaphragm
	44	Of respiration Of the peritonaeum
	45	Of the stomach Of the intestines
	46	Of the lacteals & thoracic duct Of digestion
	47	Of the liver
	48	[Of the] pancreas [Of the] omentum Of the spleen
	49	Of the kidneys
	50	Of the bladder
	51	Parts of generation in a male
	52	Parts of generation in females Of generation
	53	Of the foetus, its nutrition, &c.
Lectures	54-56	A course of bandages
	57-[?]	A course of operations Of injections

In general, lectures 2-9 cover the general structure and function of the various types of tissue discussed rather than the details of specific organs. Thus in notes on lecture 3, "Of the Arteries & Veins," Elmer writes:

"An *Artery* is a strong, membranous, ramifying, elastic Tube, endowed with pulsation; arising from the Heart, and terminating in every part of the body. The Arteries are composed of three coats, tho' some have reckoned four and some five. The first external coat is very thin the fibres of which going longitudinal & circular; the second coat is thickest and the fibres of it go in a circular direction; the 3d coat is very compact and its inside very smooth and even, this smoothness and compactness of the inner coat serves two purposes. 1st to allow the blood to pass without hindrance & 2d to prevent its exudation."

Occasionally Elmer added notes, evidently at a later date, with additional information or discussion. A note to this passage records that Cullen had "lately discovered" that the coats of the arteries contained muscular fibers. Presumably Elmer derived this from subsequent readings.

After describing a structure, Shippen often added remarks about its diseases. Thus in the notes on blood vessels, Elmer continues:

"The commonest diseases the Arteries are subject to, are, Aneurisms and Ossification.

"*Aneurisms* proceed from a preternatural dilatation of the coats of the Artery's and are of two kinds 1st when the blood is contain'd within the coats of the Artery. 2nd when the Artery is burst & the blood extravasated into a membranous bag.

"*Ossification* happens mostly to Old people from a weak & slow circulation of the Blood."

Here Elmer adds, interestingly, a note that ossification "is sometimes found in young subjects and is oweing perhaps to a disposition of the constitution to form bony matter."

The lectures also contain information

relating to therapeutics. To take another example from lecture 3, after the discussion on the veins, Elmer writes:

"In *bleeding*, the blood is suppos'd to flow out faster at the Orifice than it circulates in common, and to increase the circulation to the part, hence the doctrine of Revulsion & derivation is easily understood; thus we find in a *Aphalalgia* bleeding in the Foot causes a derivation to the Feet and a revulsion from the Head &c."

Lectures 10-39, for which there are no notes, were evidently devoted to the presentation of detailed information on the muscles and bones. Instead Elmer (4) inserted at the end of lecture 9, "For a particular description of the Bones vide *Monro's* Osteology, and of the muscles *Douglas's* Myographia." Presumably Shippen devoted particular attention to the muscles and bones because of their importance in surgery. Nevertheless, Elmer evidently decided there was no need to write out in detail information so readily available in textbooks.

Lectures 40-53 pick up the general pattern of the first group. Although these internal organs were rarely subject to surgery in the eighteenth century, knowledge of their anatomy was obviously fundamental in medicine. There was a practical reason as well:

"As we are sometimes called to open the body of a deceased Person before their Friends, particularly if they died of a violent Death, we should endeavour to do it with regularity & Decency."

Description of the viscera also gave Shippen the opportunity to continue his therapeutic remarks. For inflammation of the lungs, for example, he recommended "plentiful bleeding, diluants, fomentations externally and the steams of warm liquors particularly Vinegar, into the Lungs, thro' the mouth." In view of Shippen's prominent role in the advancement of midwifery in the country, it is interesting to record this observation on one of the difficulties of gynecologic practice: in case of "a suppression of Urine, . . . we should be well acquainted with this Orifice [of the urethra] as the modesty of women often denies us sight of the part, so that we must introduce the Catheter by feeling. . . ."

One of the most interesting of the lectures is the fifty-third, on the fetus and its nutrition. Here we find a comparatively lengthy passage presenting different arguments on the nature of the attachment of the placenta to the uterus and whether the maternal blood flowed directly to the fetus. This was the subject of Shippen's Edinburgh dissertation, which is cited in Elmer's notes. Shippen concluded that there was no direct connection between the maternal and the fetal circulation in the placenta, and supported this "new doctrine" on the following grounds:

"1st. That upon the mother's bleeding to death, the Foetus will not be depriv'd of any of its blood this Dr. Shippen proved by an experiment he made in Edinburgh before Alexander Monro jun. he bled a Bitch to death then opened her and took out her whelps which appeared to have lost not one drop of blood. 2d. That the umbilical Cord when cut will not bleed but very little . . . 3d Lastly the greatest argument of all is that Injections cannot be made to pass from the placenta into the Vessels of the uterus nor vice versa . . . ."

This lecture follows Shippen's dissertation, presenting essentially the same arguments. The experiment of bleeding the bitch is described in the thesis also, but is there reported as a repetition of the same experiment carried out early in the eighteenth century by Pierre-Simon Rouhault (5).

In the previous lecture on generation, Shippen stated (as reported by Elmer) that after the release of the ovum during orgasm,

"the place where the *Ovum* was in the *Ovarium* is soon after filled up by a yellow substance

called *Corpus Luteum*, this I proved by opening a Bitch in the Horns of the Uterus were 7 whelps . . . & in the ovaria were the same number of Corpora Lutea, [and] by a like experiment upon a Bitch opened while the Dog was fastned thereto, . . . I found that the semen was ejected immediately into the Uterus."

Aside from the erroneous conclusion derived from animal experimentation, this passage is of particular interest as the only other one describing experiments said to have been performed by Shippen himself. Although not so stated, it is possible that they were carried out in London under the eye of John or William Hunter. As we noted above, Shippen studied with the Hunters, and the evidence provided by Elmer's lecture notes substantiates the view that they had a strong influence on the young man.

Several times Shippen illustrated points in his lectures by reference to the Hunters' experiments. For example, in the lecture on the blood, Elmer reports:

"That the blood is reder in the Arteries than in the Veins, Dr. *Hunter* proved by the following experiment: he opened the Thorax of a live Dog and kept his Lungs working with a pair of Bellows, and drew a spoonful of blood from each side of the Heart i.e. from the Vena Cava & Aorta the latter of which appeared the redest."

Another of Hunter's experiments described by Shippen in lecture 3 involved the injection of warm milk into the mesenteric artery and vein of a live dog to demonstrate the "sort of a *peristaltic* motion" that propelled blood through the arteries but not through the veins. In the 5th lecture Shippen cited Dr. Hunter on the relations between the fibers of the muscles and the tendons. In lecture 6 on the "cellular membrane" he cited a case of emphysema cured by Hunter.

The influence of William Hunter's lectures on Shippen extended further than citations to the Hunters' experiments. Comparison of William Hunter's "Lectures of Anatomy" given in 1752, as transcribed in all probability by Charles White of Manchester (6), with those of Shippen indicates clearly Shippen's indebtedness. The first subjects covered in Hunter's lectures are general descriptions of the various types of tissue, in this order: blood, artery, vein, lymphatic, gland, nerve, muscle, bone (corresponding with Shippen's lectures 2-7). Then follow lengthy sections on the bones and muscles (presumably corresponding with Shippen's lectures 10-39), and in the second volume the viscera. Hunter's 1752 lectures cover the abdominal viscera before the heart and lungs, but except for this change in order, Shippen's lectures again appear to follow closely those of this teacher.

A closer examination of several individual lectures confirms this indebtedness. Consider White's notes on Hunter's lecture "Of a Gland" (7):

"A gland may be defin'd a circumscrib'd apparatus, of the soft parts, whose Office is to Secern a certain juice & throw it out of the immediate Circulation.

"They are round Bodies scituate in the Cellular Membrane generally near the large Vessels, their Substance is firm, & of various Colours.

"Sylvius was the first, who divided the Glands into Conglobate, & Conglomerate.

"The Conglobate Gland is a little smooth Body, wrap't up a fine pellicle, by which it is seperat'd from all other parts, only admitting an Artery, & Nerve, to pass in, & affording a passage to a Vein, & an Excretory Canall to come out.

"A Conglomerate Gland is compos'd of severall of these Conglobate Glands, inclos'd in one common Tunicle.

"Malpighi retain'd these, but added what he calls the Folliculus, or simple Gland, instances of which are the small Glands behind the Ears, but the most remarkable are those in the Fauces. . . .

"Malpighi was of opinion, that every Gland was a number of Cells, destin'd for receiving the blood from the Cavities, & that the Liquor stagnating, produc'd the Liquor requir'd & an Excretory Duct.

"But Ruysch by subtle Injection, has indisputably proved their Substance to be Vascular, viz. a ramifying Artery, partly terminating in a Vein, partly in an Excretory Duct.

Compare these with Elmer's notes on Shippen:

"A *Gland* is a secretary Vessel—the antients called only those Glands which we feel hard movable *kernels* under the chin and other were until *Malpighius* by his microscope found the Liver and other substances to be of the same texture, and therefore termed them all Glandular.

"A Gland he thought to be made up of little fine round bodies consisting of *Follicles* which contained the secreted fluid and between which was a *parynchemical* substance; but *Ruysch* by his injections found that the Glands were vascular or made up of fine vessels which has been further confirmed by later anatomists. The vessels of the Glands are Arteries, Veins, secretory (and to some excretory) Vessels, Nerves & lymphatics."

Elmer's notes on Shippen's lecture while following much of the same line of thought are obviously briefer. Shippen may have given shorter lectures and White was undoubtedly a more assiduous note-taker. Also, Hunter's lectures may have changed between 1752, when White took the course, and 1759, when Shippen attended. Curiously, two underlined terms found in Elmer's notes, "*kernels*" and "*parynehemieal*," also appear in notes taken on William Hunter's lectures later (in 1772?) by an unknown student (8):

"Of the Secretory System

"This is to be consider'd as an appendage to the Arterial System, to strain Juices from the Blood by Glands for particular Purposes.
By Glands we mean Secretory Organs. I imagine they were call'd Glands on Account of their similitude to Kernels. They were imagin'd formerly to be Spongy to separate Juices from the Blood & divid'd them into two Kinds Conglobate & Conglomerate, the Conglobate were those that were compos'd of a single round'd Ball, the Conglomerate those compos'd of many Balls. Anatomists differ about their particular Texture. Malphigi examin'd the Glands very minutely in a variety of different Animals, & imagin'd they were compos'd of a great Number of Membranous Bags, or Follicles, which he Thought he saw by injecting Ink into the Kidney. Rhuysch imagin'd they were entirely Vascular, & it must be allow'd that they are Vessels Branching to great Minuteness. & I think they are more than a particular Plexus of Vessels, which seperate particular Juices from the Blood. . . .

"In Glands the Blood Vessels seldom anastomose as in other Parts of the Body, & this Parenchyma is of a very soft Texture different to other Parts of the Body."

In sum we may say that William Shippen in certain respects learned well the lessons taught by William Hunter. When he returned home to begin anatomical instruction in Philadelphia, he followed the master's footsteps with little deviation. Regrettably, one must also acknowledge that there is no indication in Elmer's notes that Shippen progressed beyond the lessons of his London and Edinburgh days. He seems not to have illuminated his lectures by any additional investigations of his own, despite the example set by both Hunters, or even by examples and cases drawn from his own practice. Elmer's notes give no clue as to whether this resulted from indolence, as Benjamin Rush believed, or a restless, eager sharing in the activities of the moment, as his sympathetic biographer would have it. They do show that Shippen brought back from England and passed on to his students the best available course of anatomical lectures.

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3. Other notes taken by Elmer are in the library of The College of Physicians of Philadelphia. See its *Fugitive Leaves from the Library*, new ser. no. 21, April, 1958. Another set of notes on Shippen's lectures dated 1777 is also preserved at The College of Physicians: *ibid.*, no. 20, March 1958; Middleton, W. S. 1932. William Shippen, Junior. *Annals of Medical History*, n.s. 4: 440–52, 538–49, cites a set of lectures taken in 1783–84 preserved in the library of the University of Pennsylvania; see p. 449.
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Dr. Henry Pickering Bowditch on the Growth of Children: An Unappreciated Classic Study[1]

By THOMAS E. CONE, JR., M.D.[2]

I have been a stranger in a strange land.
Exodus 2:22

Physiologists over 50 years of age will recognize the name Henry Pickering Bowditch (1840-1911) (Figure 1), but to contemporary pediatricians it will probably mean nothing. Although Dr. Bowditch was America's foremost physiologist during the second half of the nineteenth century, I believe his greatest contribution to medicine was not his many important physiologic discoveries but rather his large-scale study of the growth of Boston school children. This study, published in 1877, was the first detailed study ever performed to measure children's growth rates, but unfortunately it has never received the praise it is due.

Why a totally laboratory-based physiologist like Bowditch, trained in the Germanic pattern of late nineteenth-century laboratory research, would leave his laboratory to instigate the pioneer study of the growth of children has long puzzled me. And why his massive and meticulously performed study had so little effect on contemporary physicians remains even a greater mystery.

INTEREST IN THE HEIGHT AND WEIGHT OF CHILDREN PRIOR TO BOWDITCH

The first earnest and continued series of anthropologic measurements made on the growth of the infant from birth throughout the period of growth were those of Quetelet (1796-1874), who may truly be called the founder and inspiration for our modern interest in the physical growth and development of the infant and child.

Quetelet called attention to a little-known pioneer study of human growth performed by Gueneau de Montbeillard consisting of measurements of his son's growth (a first child) begun at birth (April 11, 1759) and continued for nearly eighteen years (until November 11, 1776, with a final check on January 30, 1777). The measurements were made at approximately semiannual intervals.

The observations were not published by Montbeillard, but were turned over to Buffon, the famous naturalist, with whom Montbeillard was a co-worker. These growth data first appeared in print in 1777 in the fourth volume of the supplement to Buffon's *Histoire Naturelle* (1). Save for this study of a single child's growth there were no other similar studies, according to Quetelet.

It is of interest that Quetelet's training was not in medicine, but rather in astronomy, meteorology and statistics. While serving as the director of the Royal Observatory in Brussels, he published his important work, *Sur l'Homme et le Développment de ses Facultés*, in 1835 (2). This book, well-known to Bowditch, paved the way for others inter-

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Fig. 1. Henry Pickering Bowditch (ca. 1900).

ested in the growth of children. Those interested in human growth owe an intense debt to Quetelet for his brilliant original studies of growth and for his provocative hypotheses concerning the laws of human growth. Quetelet, after an exhaustive search of all the studies dealing with the bodily proportions of man by European scientists and artists, wrote that he was astonished by the paucity of measurements made on human adult models but even more puzzled by the total absence of information concerning the heights and weights of growing children.

BOWDITCH'S BACKGROUND

Henry Pickering Bowditch, born in Boston April 4, 1840, was the grandson of Nathaniel Bowditch, the self-educated, accurate and careful author of *The American Practical Navigator.* His father, Jonathan Ingersoll Bowditch, was a Boston merchant, a man with a scientific turn of mind, who continued to edit *The Practical Navigator.*

Through his mother, Lucy Orne Nichols, he was related to Colonel Timothy Pickering who served as Washington's Secretary of State, to John Pick-

ering, an authority on American Indian languages, to the well-known astronomers, Edward and William Pickering, and to the mathematician, Benjamin Mills Pierce: a group of intellectuals who might well have found a place in Francis Galton's *Noteworthy Families*.

Bowditch received his A.B. from Harvard College in 1861 and in the fall of that year he was commissioned a second lieutenant in Company G, 2nd Battalion, 1st Massachusetts Cavalry of the Union Army. He participated in a number of raids and engagements of the Civil War and at New Hope Church, Virginia, on November 27, 1863, he was shot in the right forearm. His injury kept him from the field and in February 1864 he was honorably discharged because of his battle injury. Almost immediately he rejoined the Army; this time with the rank of major in the 5th Massachusetts Cavalry (colored) and with that regiment entered Richmond, Virginia, on April 3, 1865.

His commanding officer, Henry L. Higginson described Bowditch as a "handsome, refined, and homebred looking youth, often reserved and even unbending in his manner, but unflagging in his faithfulness and unflinching in his courage."

Following his discharge at the end of the war, he resumed his studies at the Lawrence Scientific School under the stimulating influence of the eminent comparative anatomist, Jeffries Wyman, receiving his M.A. from the school in 1866. He then entered Harvard Medical School, graduating in 1868. In the late summer of the same year, he went to Paris to study physiology under Claude Bernard, and neurology under Charcot. The following year he traveled to Leipzig to enter the laboratory of Carl Ludwig. Ludwig was an inspiring teacher and from him Bowditch acquired the formative and directive stimuli which were to determine his subsequent career. Under Ludwig, Bowditch made two investigations which are now classical. The first (1871) demonstrated the *Treppe* or stepwise increase of contraction of cardiac muscle under successive uniform stimuli, and the fact that, independently of the strength of the stimulus, cardiac muscle will either contract to the maximal limit or not at all ("All or None" law). The second (also in 1871) was that delfine will make the apex of an isolated heart beat rhythmically (1871), a discovery ten years in advance of the introduction of Ringer's solution.

In April, 1871, Charles W. Eliot, the new president of Harvard, invited Bowditch to return to Boston "to take part in the good work of reforming medical education" with the offer of an assistant professorship of physiology. Bowditch accepted the offer, sailed from Liverpool on September 14, 1871, with his new bride of five days, Selma Knauth, the daughter of a Leipzig banker.

Bowditch returned to Harvard with a complete outfit of new laboratory apparatus, purchased in Europe at his own expense, but could only get the use of two small attic rooms in the medical school for his laboratory. Here, however, the first physiologic laboratory in the United States was started.

These two attic rooms might be better designated the first laboratory for experimental medicine established in this country, for every phase of late nineteenth century experimental medicine was represented there within a few years after its establishment. Charles Minot carried on investigations in general biology, J. Ott and R. W. Lovett in experimental physiology, J. C. Warren in experimental pathology, G. Stanley Hall and W. F. Southard in experimental psychology, O. K. Newell in experimental surgery and W. P. Lombard, J. J. Putnam (assisted by William James), C.

S. Minot, G. M. Garland, C. H. Williams, J. W. Warren, F. H. Hopper, and F. W. Ellis in physiological researches (3).

In his lifetime, Bowditch was unquestionably the foremost American physiologist after Beaumont. He was unusually skillful in inventing devices for his laboratory experiments. For example, while in Ludwig's laboratory in 1869, he devised the first apparatus (a simple use of the metronome) to mark time on the then newly invented kymograph. A new form of plethysmograph, a new apparatus for artificial respiration, a cannula for observing the vocal cords, a special arrangement of non-polarizable electrodes, and the comfortable lounging chair (Bowditch chair) were additional evidences of his inventiveness (4). One of his later major contributions to physiology (1890) was that nerve fiber cannot be tired out. Bernstein in 1877 had concluded that the nerve in a nerve-muscle preparation can be tetanized, or exhausted by 5-15 minutes' stimulation, but others had gotten response after 1-9 hours' stimulation by blocking the nerve by means of galvanic current applied between the point of stimulation and the muscle or by etherizing the same area. Bowditch completed the proof by producing a functional nerve-block with curare and got muscular twitchings after 1-4 hours' stimulation in warm-blooded animals. He concluded that a nerve is like a telegraph wire and the passage of nerve current analogous to that of light or electricity. This method of proof was the rationale of conduction anesthesia, or nerve-blocking subsequently introduced into surgery by Halsted, Cushing and Crile.

With Bowditch's appointment to the Harvard chair, physiological teaching in America came into its own, and ceased to be a subordinated subject in the medical curriculum. He taught the subject for 35 years, was appointed full professor in 1876 and George Higginson Professor in 1903. During the decade 1883-93, he was dean of the Harvard Medical School, introduced a four-year medical course and a chair of bacteriology occupied by H. C. Ernst. He was a founder of the American Physiological Society (1887), and succeeded Weir Mitchell as its second president (1888).

BOWDITCH'S GROWTH STUDY

I believe the sole reason why Bowditch decided to leave his physiology laboratory for a short interlude to study the growth of children was his nationalistic pride to prove that the physique of American children was not inferior to that of European children. *The Boston Medical and Surgical Journal* for December 19, 1872, contained the following report of a communication made by Bowditch at a meeting of The Boston Society of Medical Sciences held on September 24, 1872:

> Dr. Bowditch exhibited a diagram showing the rate of growth, in height in the two sexes. The curves of growth were so drawn that the abscissas gave the age in years and the ordinates the height in feet and inches. They represented the average measurement on 13 individuals of the female and 12 of the male sex. The measurements were all taken annually during the last 25 years, and the individuals were all nearly related to each other. An examination of the curves shows the following facts:
>
> 1. Growth is most rapid during the earliest years of life.
> 2. During the first 12 years boys are from 1 to 2 inches taller than girls of the same age.
> 3. At about 12½ years of age girls begin to grow faster than boys, and during the 14th year, are about 1 inch taller than boys of the same age.
> 4. At 14½ years of age boys again become the taller, girls having, at this period, very nearly completed their growth, while boys continue to grow rapidly till 19 years of age.
>
> The tables and curves of growth given by Quetelet, show that in Belgium, girls are, at no period of their lives, taller than boys of the

same age, though at 12 years of age their weight is precisely the same as that of boys, and decidedly less both before and after that period. Measurements taken among the lower classes, in Manchester and Stockport [England], show that during the 13th and 14th years, girls are superior to boys, of the same age, both in height and weight.

It would be interesting to determine, by more extended observations, in what races and under what climatic conditions the growth of girls, at about the period of puberty, is the most rapid. It is possible that in this way, facts may be discovered bearing upon the alleged inferiority in physique of American women.

Before beginning his study Bowditch searched the literature for previous studies of children's growth other than Quetelet's but none were located.

To be sure he had not missed a previous report he wrote the following letter to Dr. Edward Jarvis (1803-1884), a well-known physician and the foremost biostatistician of his day:

Jamaica Plain
March 20, 1874

Dear Sir,

It has occurred to me that it may be possible *to show some conclusions as to the probable cause of the asserted physical inferiority of American women by comparing the rate of growth in height and weight of the two series in this country and in Europe* [italics mine]. Quetelet gives certain data for European countries and I take the liberty of writing to you as the person best able to inform me whether any observations have been made in this country which will be of use in making this comparison.

If no such observations are on record I intend to endeavor to obtain through The Social Science Association a record on the height and weight of the children in our public schools . . . .

H. P. Bowditch

The "asserted physical inferiority of American women," mentioned in Bowditch's letter of March 20, 1874, to Dr. Jarvis, was a widely-accepted belief in mid-nineteenth century America. For instance, Catherine E. Beecher wrote (5):

A difficulty peculiar to American women is, a delicacy of constitution which renders them early victims to disease and decay . . . women of this country are unusually subject to disease, and that their beauty and usefulness are of shorter continuence than those of the women of other nations, is one which always attracts the attention of foreigners; while medical men and philanthropists are constantly giving fearful monitions as to the extent and alarming increase of this line.

In consequence of this enfeebled state of their constitutions induced by a neglect of their physical education as soon as they are called to the responsibilities and trials of domestic life, their constitution fails and their whole existence is rendered a burden. For no woman can enjoy existence, when disease throws a dark cloud over the mind and incapacitates her for the proper discharge of every duty.

Dr. E. H. Clarke, a Boston physician and Bowditch's friend wrote in 1873 (6):

. . . "I never saw so many pretty girls together," said Lady Amberly to the writer, after a visit to the public schools of Boston; and then added, "they all look sick." Circumstances have repeatedly carried me to Europe, where I am always surprised by the red blood that fills and colors the faces of ladies, and peasant girls, reminding one of the canvas of Rubens and Murillo; and am always equally surprised on my return, by crowds of pale, bloodless female faces, that suggest consumption, scrofula, anemia and neuralgia. To a large extent, our present system of educating girls is the cause of this pallor and weakness.

Bowditch's letter went unanswered; about a year later, he again wrote to Dr. Jarvis as follows:

March 10, 1875

. . . Allow me to trouble you about one more matter. Some months since I wrote to you asking you whether you knew of any measurements having been taken in this country to determine the rate of growth of children in

both sexes. My letter was answered by your wife who informed me that you were then unwell but would answer my letter on your recovery. If not too much trouble to you I should be glad to have you refer me to any statistics on this subject as it is a matter which I particularly desire to investigate. Excuse my putting you to so much trouble but, I know of no one else who can give me the desired information. I have endeavored to get an opportunity to speak to you on the subject at several Academy meetings but your early departure has always frustrated my plans.

H. P. Bowditch, M.D.

Dr. Jarvis promptly replied to Bowditch's second letter and referred him to Quetelet's anthropometric studies.

Early in 1875 Bowditch petitioned the Boston School Committee for authorization to begin his growth study and on March 9, 1875, permission was granted as follows (7):

In SCHOOL COMMITTEE, March 9, 1875 ordered, that permission be given to Prof. Henry P. Bowditch, of Harvard University, to ascertain the height and weight of the pupils attending the public schools, through such an arrangement as the respective chairmen and the head master, or masters may deem most convenient.

Attest: Bernard Capen, Secretary

And so began the first full-scale growth study of children ever performed. Bowditch's is a cross-sectional study which means that the children were measured once only at selected ages. Longitudinal (seriatim) growth studies measure the same children each year, but this type of growth study was not performed until the early part of this century.

Toward the end of 1875 the mass of data already obtained led Bowditch to write to Dr. Jarvis for help in obtaining "the services of an accountant to add up columns of figures, calculate averages, etc." He wrote:

. . . Dr. Folsom tells me that you have employed a young woman for similar work who is remarkably skillful and accurate in such matters. If you can send me her address or that of any other person whom you can recommend I shall be greatly obliged to you . . . .

Bowditch's statistical data were collected in nearly all the public schools in Boston, in several schools in the adjoining towns and cities, and in a few private schools. About 24,500 observations were collected and the nationalities of parents were confined to:

1. Parents, both American
2. Parents, both Irish
3. Parents, one American and one Irish
4. Parents, both German
5. Parents, one or both English

The most important results of Bowditch's study were:

I. The growth of children takes place in such a way that until the age of eleven or twelve years, boys are taller and heavier than girls of the same age. At this period of life girls begin to grow very rapidly, and for the next two to three years surpass boys of the same age in both height and weight.

II. Children of American-born parents are, in this community [Boston], taller and heavier than children of foreign-born parents, a superiority which seems to depend partly on the greater average comfort in which such children live and grow up, and partly upon differences of race or stock.

III. Pupils of American parentage at the public Latin School, private Latin School, and Massachusetts Institute of Technology are (apparently for similar reasons) superior in height and weight to the generality of boys of American parentage attending the public schools.

IV. Pupils of the same selected schools are also taller and heavier than English boys of the non-laboring classes attending public schools and universities, the superiority in weight being, as a rule, more marked than that in height.

V. The relation of weight to height in growing children is such that at heights below 58 inches, boys are heavier than girls in proportion to their stature. At heights above 58 inches the reverse is the case.

Bowditch continued to be puzzled by Quetelet's data which showed that the curves of growth of the two sexes never intersected; that is, boys were taller than girls at every age during the growing period. Bowditch, after restudying his data in light of Quetelet's findings still showed that girls of 13 years of age are, as a rule, taller and heavier than boys of the same age.

The only accessible observations on girls, except those of Quetelet, were those from Great Britain cited by Quetelet himself. This was the observation made by Cowell among the lower classes of the population of Manchester and Stockport [England], by which it appeared that the relative size of the two sexes varied very much, as in this community.

REACTION OF THE PRESS TO BOWDITCH'S STUDY

Bowditch's growth study was picked up by a number of the widely-read newspapers. Most reported the study in a favorable light, but the editorial of July 13, 1877, in the *New York Times* had a tongue-in-cheek response to the study. Some of the comments in this editorial were:

BOYS AND GIRLS

One Dr. H. P. Bowditch of Boston, has been investigating girls and boys to an immense extent. He has made no less than 24,500 distinct observations upon the pupils of the Boston schools, but whether he observed precisely 24,500 pupils or observed a smaller number several times apiece, we are not informed.

His motive was not, as may be imagined, mere idle curiosity. Dr. Bowditch is a scientific person, and he desired to write an exhaustive scientific treatise upon boys and girls. The treatise is now before the public, and is filled with improving and novel information . . . . No doubt the author considers his diagrams important and interesting, but their fidelity to nature does not impress the skeptical mind. The Boston girl when under the age of 14 may be even more angular than the Boston maiden lady of 40; but when a diagram which looks more like a drawing of a staircase than anything else is presented to us as a diagram of the average Boston school-girl, it does seem as if there must be a mistake somewhere.

Dr. Bowditch has ascertained that under the age of 14 boys weigh more than girls. Strange as it may seem, he totally overlooks the cause of this difference in weight. The small boy has from two to four pockets, in each of which he carries at least a pound of assorted hardware, while the Boston girl carries in her solitary pocket nothing heavier than a few slate pencils and a pocket edition of Emerson. Hence, the small boy inevitably weighs nearly twice as much as a girl of the same age and height.

About the age of 14 the girl adds to herself say six pounds of hair, eight pounds of pet—that is to say, garments, and at least a pound of caramels. Of course, Dr. Bowditch finds that she has suddenly grown heavier, but though he records the fact, he explains it in eight-syllable words that may be tremendously scientific but which have no allusion to pockets . . . .

The public has a great respect for science, especially when put up in the shape of figures, but it will not readily believe that the difference between boys and girls is so slight as Dr. Bowditch represents that it is . . . .

It is a bold thing for Dr. Bowditch to attempt to estimate the value of Boston girls, and it is quite possible that his courage failed him at the last moment and he took refuge in premeditated obscurity of statement. He says that the difference in the "calculated and observed values" of boys and girls is "in the case of boys 0.65 pounds, and in that of girls 1.41 pounds with one exception, where it is 2.01 pounds." It is very evident from this statement that girls are of much greater value than boys, but the wording is so obscure that we cannot gather from it the precise worth of either. Does Dr. Bowditch mean to say that the average Boston girl is worth precisely 1.41 pounds and no more? And does he mean pounds of beans or pounds sterling? It is impossible to doubt that he has deliberately shirked answering these questions, and has compromised his scientific conscience by stating facts in a manner so obscure as to baffle the ordinary mind.

The more the results of Dr. Bowditch's observations are studied the more accurately can we appreciate the enormous labor which he has undergone in the collection of data. To observe a small boy for half an hour would try the patience of the strongest man, but this indefatigably scientific person has observed thousands of small boys for indefinite periods.

Whether his observations and the great truths which he has deduced from them will lead to any marked improvement in the boys and girls of the future remains to be seen, but in any event he deserves the utmost credit for his careful, prolonged, and valuable observation.

This "scoffing" article must have bothered Bowditch's parents and led him to write this amusing letter to his mother.

July 21st, 1877

Dear Mother:

Understanding from Father that you feel unhappy about that scoffing (?) article in the N. Y. Times I write to propose that you should fly to the defense of your little boy and demolish the author of said article in a reply directed to the editor of the newspaper which was rash enough to publish it. Tell him that it is unworthy of American journalism to give place in his columns to such low and vulgar attacks upon fair science. Tell him that such attempts to throw ridicule upon serious and valuable investigations can injure only those who make them and conclude by demanding a public retraction of vituperations cast upon the work and an apology for this insult offered to the family.

If this does not make the unfortunate writer wish he had never been born, or at any rate convince him that he has mistaken his vocation in trying to write editorials he may be regarded as a hardened offender on whom it is not worth while to waste time, ink or paper.

Love to all
Affly
H. P. Bowditch

Sunday
P.S.

This letter did not get posted yesterday and I have taken advantage of the circumstance to assure you that upon mature reflection I have come to the conclusion that the article in the N. Y. Times will do more good than harm.

Seriously, my dear mother, it cannot help doing good for a great many people will read it and some of them will have their attention drawn to the subject who would otherwise never have thought of it. There will thus be more chance of getting a large number of observations made.

Henry

Other newspaper editorials such as those published in the *Philadelphia Inquirer*, the *N. Y. Daily Graphic*, the *Boston Daily Globe* commented that the most important result of Dr. Bowditch's growth study was that it not only disproved the prevailing notion of the physical degeneracy of American-born children but that it also demonstrated that such children have a better physique than the children of foreign parentage, or of the average English child.

Two of the editorial titles were: "Proof that the Anglo-Saxon Race in America is not Degenerating" (*New York Daily Graphic*, July 2, 1877), and "Are Americans Running Down?" (*Boston Daily Globe*, June 14, 1877). The answer was a resounding no!

MEDICAL REACTION TO BOWDITCH'S STUDY

Medical reaction to the study was spotty. *The Boston Medical and Surgical Journal* in an annotation succinctly summarized the conclusions from Bowditch's report and ended by writing that the report deserves attention not only for the intrinsic interest of the subject, but as a model to be studied with advantage by all those who may propose to engage themselves in similar work (8).

A few of the English and French medical journals editorialized favorably about the significance of Bowditch's study. One of the American journals commented as follows:

"We suggest . . . that the same test [measurement] be applied so far as may be, to children who do not attend school; those in shops, factories, and at trades, as well as those upon the streets in order that we may know to what

extent the attendance upon school affects their natural growth."

Strangely, too, none of the contemporary American or British pediatric textbooks referred to Bowditch's pioneer study. This might seem strange, but it should be remembered that even the newborn infant's birthweight was not recorded in medical literature until 1694—and it was an erroneous figure! It was not until 1753 that Roederer for the first time gave the correct values for the height and weight of the newborn infant (9).

INDIVIDUAL PHYSICIANS' REACTIONS TO BOWDITCH'S STUDY

Dr. Bowditch kept a few letters he received from physicians to whom he sent copies of his study. Weir Mitchell wrote "I read it every line with scientific and national pleasure."

Dr. Engel, Director of the Royal Office for Statistics in Prussia complimented Bowditch for publishing "a new and very previous (sic) contribution to anthropometry, a science much more and better cultivated in the United States of America than elsewhere."

Dr. Mary Putnam Jacobi, the distinguished physician wife of Dr. Abraham Jacobi, in her letter to Bowditch took him to task for his views about coeducation. She wrote:

July 6, 1877

"Will you permit me to say that I cannot help being somewhat amused to find the question of coeducation brought in this connection (the more rapid growth of girls in relation to boys during early adolescence), and settled in the same way as seems to be *de rigueur* with every Harvard professor?

Yet—I would ask—how do the data, touch upon the point really at issue— The conclusion *should* exclude coeducation for the ages of 12 to 15—where at present it exists for innumerable high schools and academies, but have no bearing upon the education at universities, i.e. from the ages of 18-22—where for girls especially growth is completed? Whatever other arguments may be urged for this age—how can *growth* affect it?

If it be not too much trouble, I should be glad to hear your opinion on this subject?

I am sir, with much respect,

Very truly yours,
M. Putnam Jacobi

I have not been able to find Bowditch's answer to Mary Jacobi's question but he, as well as almost every one of his contemporaries, enjoined against coeducation for college students.

An editorial in the *Nation* of July 12, 1877 also took up the question of coeducation in these words:

A number of interesting inquiries are suggested by these studies, as for example, the bearing of the rates of growth on the question of coeducation, which Dr. Bowditch inclines to think advisable only during the earlier years of life, in which rates of growth are practically the same—*i.e.*, up to 10 or 11 years of age.

LATER YEARS

Bowditch continued his interest in the growth of children after his study was published in 1877. He did not institute any further large-scale anthropometric studies but he continued to subject his original data to more precise statistical analyses, such as Galton's method of "percentile grades."

In 1889 Galton's *Natural Inheritance* was published in which he elaborated his scheme of "percentile grades" as a means of showing the results of statistical inquiry and facilitating a comparison between various sets of observations. In a paper on the physique of women in Mas-

sachusetts, Bowditch in 1890 (10) called attention to the advantages of this scheme, and in 1891 he published a review of his data on the growth of school children based on the applications of Galton's method, and in it he emphasized the importance of repeated measurements of the same child during the years of rapid growth, in order to allow accurate conclusions to be drawn regarding variability and relative size at various stages of adolescent development (11). One of the new points brought out was that the period of growth acceleration, which is so prominent a phenomenon in the growth of children, occurs at an earlier age in large than in small children.

Before Bowditch resigned from his chair in 1906, he had become afflicted with a rapidly progressive form of Parkinson's disease. He quietly passed away on March 13, 1911.

Fielding H. Garrison, our foremost medical historian, has beautifully described Bowditch-the-man in these words (3):

"Recalling his visits to the Surgeon General's Library with his charming wife, it was a pleasure to see him enter an office room. He seemed to light up the musty atmosphere, as Osler may be said to have warmed it. His blithe, buoyant personality radiated joy of life and good will toward his fellow men."

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"That the Child May Rise in the World:" A Folk Belief and Custom of the Nursery[1]

By WAYLAND D. HAND[2]

Concern about the fortunes of a newborn child is expressed in many ways in the folklore of birth, infancy and childhood. This interest is seen long before the child's birth and determines in many ways how the expectant mother deports herself and what other people in the family -and even friends and neighbors— do and do not do in their efforts to secure the most favorable auspices they can for the newborn child. Since much has been written about prenatal influences and precautions, I have chosen, in honoring America's leading authority on pediatric folklore, to treat one of the first ritual acts that takes place following the birth of the child. After the first bath, if not before, the child is taken upstairs before it is taken downstairs, so that, symbolically speaking, it may "rise in the world," or "rise in life," as this simple act is described. "Rising in the world," which is a figure of speech for various kinds of attainment in later life, is encountered, not only in the South where the collecting of folk beliefs and superstitions has been somewhat more thorough than elsewhere (1), but also in Massachusetts, New York State, Pennsylvania, Ohio and Missouri (2). It is also found among the Pennsylvania Germans and is also known in the Negro tradition of the Southern States (3). This folk belief and custom, as well as the phrase itself, is found in English folklore, where it most likely developed (4). "Rising in life," as a phrase and as a custom, likewise is encountered on both sides of the Atlantic (5).

Although the way the instruction is phrased it would appear that the mother herself was supposed to carry the child upstairs, this simple office almost invariably fell to others, often the midwife (6), since the brief trip upstairs was usually carried out on the day of birth itself or on the first day afterward, as in Ohio, Texas and elsewhere (7). In Leicester and Rutland this act had to be carried out when the baby first left its mother's room, and Black reports that this might be done by the nurse any time within the first month (8). In Indiana it was specified that the journey take place "soon after birth," and that the baby be taken upstairs or to some other high place so that it would rise in the world (9). In Suffolk, mounting a stool or ladder would suffice, so that the child would "rise in life to riches" (10). Taking the child into the garret was practiced in New England, Maryland, and even by ladder, as in Illinois (11). Where there was no upstairs, the difficulty was overcome, as in Ohio, by stepping on a chair and holding the baby aloft (12). In nineteenth-century Scotland, a similar makeshift arrangement was effected, whereby the person who carried the child mounted three steps of a ladder or another kind of temporary platform in the hope of bringing prosperity to the child (13).

In some cases, economic success is en-

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visioned in terms of the expressions "rising in the world" or "rising in life." This construction of the term ranges all the way from simply "making good in life," as in Dutchess County, New York (14), to more pointed references to prosperity and wealth. In Florida, for example, extra measures were taken to insure wealth (15):

> When a first trip out of the house is made by a wee baby, it must first be taken upstairs before it goes down so it will rise in the world; also, all the jewelry in the house must be put on it on this momentous occasion so it will be rich.

In Pennsylvania the trip upstairs was to insure health and happiness, as well as riches, in later life (16).

Apart from success, prosperity, and general esteem, qualities of mind and spirit were also envisioned in the ritual of carrying the child upstairs, holding it aloft, or rising with it by other means. In North Carolina the baby was taken upstairs the first time it went out, so that it would have high ideals (17). In the Pennsylvania German tradition it was believed that the child would have lofty thoughts if a louse was placed on its head and it was carried to the upper story of the house before it was nine months old (18). In some places the child was carried upstairs before the ninth day, with a Bible in its hand or a silver spoon (19). More often, the instruction that went along with the act was that the child become "high-minded," by which intelligence as well as generosity of spirit was meant (20). These Pennsylvania customs were also known in nearby Maryland (21). The Pennsylvania German custom of taking the baby's first bathwater upstairs and throwing it out of an attic window upon a growing tree, so that the child would be high-minded (22), was also encountered in somewhat modified form in Illinois (23). A somewhat humorous touch is seen in a custom observed in Maryland, where, to insure that a baby would be bright, it was taken upstairs and its head bumped to the attic roof for good luck (24).

Another reason for taking the child upstairs before it was taken anywhere else was to insure that the child would go to heaven. This folk belief and custom, known in the British Isles (25), was encountered also, among other places, in Pennsylvania (26) and North Carolina (27):

> The first time a baby is taken out of its room or its natal room, it must be taken up, or it will not go to heaven. If the door of the room steps down, as many of these patched-up houses do, then the person carrying the baby must step up on a chair or book with baby in her arms.

A curious explanation, also with religious overtones, is seen in a Pennsylvania German prescription (28) that everything the midwife does "should be upward rather than downward, so that [the child's] life-spirit would always move upward and thus eventually be freed from the round of life."

Related to carrying the baby upstairs was the notion that the child should be taken uphill before downhill, as in North Carolina (29). Perhaps a Pennsylvania German prescription from Somerset County (30) sums up better than anything else the feeling that people have about the first critical hours, days, weeks, and months of a baby's life, what the child does, and what is done to him or her, indicates the ideal future course of life:

> If you have a newborn baby, the first time you go out if you go up, such will be its life; if down, it will go down. Therefore, always go up: hill, town, stairs, or whatever.

Seen in a broader folkloric perspective, this simple folk belief and custom of the nursery parallels certain other kinds of beliefs and customs that are connected

with the rites of passage, particularly those which Van Gennep (31) has aptly denominated *les rites de commencement, ou rites de la première fois.* These beliefs and customs often cluster around New Year's, when what one does during the first hours and days of the new year predicts what one will be doing throughout the entire year. For this reason first footing, for example, becomes very important, and the arrival of the male or female visitor on New Year's morning may indicate whether more pullets than cockerels will hatch during the year, whether more bull calves will be born than heifers, or whether there will be drought rather than rain throughout the twelvemonth. In the case of children, however, there is a more intimate bond with the family than there is between husband and wife and any other part of the patrimony. The answer to why the child is carried upstairs in its earliest hours is to be sought in the people's understanding of the deeper purposes of life. Because of long and abiding family ties and the close bonding of generations, everyone knows that the child one day will take his place at the head of the house, the farm, and that he will in his own time and way carry on the endless generations of his own family and of mankind. This, really, is why it is so important that "the child rise in life."

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Charles David Spivak's Role in the Development of Medical Libraries[1]

By GENEVIEVE MILLER, Ph.D.[2]

In his 1968 Welcoming Address to the Medical Library Association meeting in Denver, Frank B. Rogers reviewed the role which Denver physicians played in the medical library movement around the turn of the twentieth century. He particularly signalized the activities of Charles David Spivak and proposed that June 11, 1968 be designated Charles D. Spivak Day. Since Dr. Rogers' paper was incorporated in the Transactions of the Denver meeting (1) and was not indexed in the National Library of Medicine *Bibliography of the History of Medicine*, it escaped the attention of medical historians, and Dr. Spivak vanished into the literature. While studying events in medico-historiography of the turn of the century, I encountered Spivak, became intrigued by him, and, not knowing of Rogers' publication, undertook to reconstruct his medico-historical and library-related activities. Since Rogers' excellent paper has been, for all practical purposes, buried, perhaps I may be excused if I repeat Spivak's story again, while adding some new information, since I feel that he has not received the attention which he deserves in the history of the medical library and medico-historical movement in the United States (2).

Born in Russia in 1861, Charles David Spivak's activities against the Czarist government led to his emigration to America in 1882 (3). After working in various farm and factory jobs, he entered Jefferson Medical College in Philadelphia, graduating in 1890. He also took some postgraduate work in Germany. He became a member of the clinical staff of the Philadelphia Polyclinic and immediately commenced an active career of research and writing which continued throughout his life. Described by a colleague (4) as possessing "phenomenal originality and teeming energy," in 1891 he published his first paper, a review of ancient theories on menstruation (5). Sifting through the riches of the library of The College of Physicians of Philadelphia, he came to appreciate the value of a large reference library, and having supported himself as a librarian of a settlement house during medical school days, he was also aware of the practical problems involved.

In 1896 David Spivak moved to Denver where he immediately became immersed in area medical activities. Among his first papers to a local group was that which he read before the Colorado State Medical Society on June 15, 1897, on "The ancient and modern instruments used in diagnosis and treatment of diseases of the esophagus and stomach" (6). By this time he was already Associate Professor of Anatomy and Lecturer on Diseases of the Stomach and Intestines at the Medical Department of the University of Denver, subsequently becoming Professor.

Like the pioneer physiologist, Henry Sewall, who had gone to Denver earlier, Spivak immediately felt the need for an adequate medical library. Although the city had four hundred physicians serving a population of more than 125,000, of whom one-third were seeking relief from

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tuberculosis, the medical library resources were minimal. In 1893 Sewall had stimulated the organization of the Colorado Medical Library Association with the advice of his friend and patient, John Cotton Dana, the first librarian of the Denver Public Library, who had agreed to house the Association's books in the Public Library (7). By 1896 the collection numbered about 3000 volumes. Spivak conceived a plan to utilize local library resources outside of the Association.

On December 9, 1896, he read a paper before the Denver and Arapahoe Medical Society on "How the Library of the Colorado Medical Association can double the number of its volumes without making any new purchase—a suggestion." He proposed that a list of books in the Association library be sent to all local physicians with the request that they submit titles of all books and journals in their personal libraries which were not on the Association list. With such titles the librarian could then compile a union catalogue (8). Spivak's plan was formally proposed to the Colorado Medical Library Association at its January 11, 1897 meeting, and he was appointed to execute it.

When Spivak found that most physicians were too busy to list their books themselves, he personally canvassed them. As he wrote (9) later, "He who has just graduated, or who has a superabundance of time on his hands should undertake this work of love." The following form was used:

A LIST OF BOOKS AND JOURNALS in the private library of
Dr. _____
Address _____
which may be consulted by patrons of the PUBLIC LIBRARY, DENVER, during the following office hours:

_____

Title Author
Date Vol.
Place & Publisher

Titles already available at the Public Library were deleted, and a single catalogue by authors, titles and subjects was prepared. The location was indicated by the number assigned to the physician owning it. In this way more than 6000 titles were added to the Colorado Medical Library Association File (10).

The task took Spivak less than six months, and the project was widely publicized through his article "How every city may secure a medical library," published in the October 2, 1897 issue of *Medical News*, a Philadelphia journal with a national circulation (11). An editorial (12) in the *Journal of the American Medical Association* in January, 1898 praised Spivak's "important idea" and pointed out how it could be imitated in any large town and be "of very wide benefit to the profession." At the December 11, 1897 meeting of the Denver and Arapahoe Medical Society, members voted to distribute reprints of Spivak's article to all the medical societies in the United States, and at the same time to enclose a questionnaire in order to obtain information about their libraries.

Spivak, as a special project for the pending meeting of the American Medical Association in Denver in June, 1898, wished to make a survey of all the medical library resources in the country. His questionnaire and article were sent to 250 medical societies and 30 academies of medicine, while another circular was sent to all known medical libraries and general libraries with more than 50,000 volumes (13). He received excellent cooperation from prominent librarians and physicians throughout the country such as Dr. James R. Chadwick, Librarian of the Boston Medical Library, Dr. John B. Hamilton, the editor of the *Journal of the American Medical Association*, Dr. Nicholas Senn who had helped to develop the medical section of the Newberry Library in Chicago, Dr. George M. Gould, the editor of the *Philadelphia*

Medical Journal, Dr. William Browning, Librarian of the Medical Society of the County of Kings in Brooklyn, Dr. John Shaw Billings, then at the New York Public Library, J. C. Merrill of the Surgeon General's Office Library, and Melvil Dewey of the New York State Library in Albany who was Secretary of the American Library Association.

Spivak's report (14), "The medical libraries of the United States," published in the October 22, 1898 issue of the *Philadelphia Medical Journal*, was a detailed tabulation of information about the location of libraries, their size, income, endowment, terms of use, the name of the librarian, the population it served, and the date of organization. Useful statistical summaries brought out the sources of support, geographic distribution, the number of libraries by states, the number of libraries with reference to the population of the city or town, and the ratio of libraries to the number of physicians in the state. His survey showed that the total number of volumes in all libraries was 659,116, with only the Library of the Surgeon General's Office surpassing 100,000 volumes (123,924). Only the following libraries owned their own buildings: New York Academy of Medicine, Boston Medical Library Association, The College of Physicians of Philadelphia, Pittsburgh Academy of Medicine, Cleveland Medical Library Association, Library of the Medical Society of the County of Kings in Brooklyn, and the Hartford Medical Society. Of the eight libraries with endowment funds the largest was the New York Academy of Medicine ($55,000), followed by the University of Pennsylvania ($10,000), The College of Physicians of Philadelphia ($8,500), and the recently founded Cleveland Medical Library Association ($7,000).

Spivak listed 120 medical libraries in the United States and 45 medical departments in public libraries at a time when there were 165 medical schools, of which only 24 considered a library to be important for a school. However, three years later in 1901 he was able to report a change in the medical schools' attitude (15). In his survey Spivak also added constructive suggestions for the improvement of existing libraries, such as consolidating them when there was more than one in a city, and reviving libraries no longer in use. He noted, for example, that "In Salem, Mass., there is a library of 3,500 volumes, the existence of which is not known even to the resident physicians" (16). Spivak's survey brought to a focus the medical library picture at the end of the century; he also supplied the library information for the 1898 edition of Polk's *Medical and Surgical Register* (17).

Meanwhile, in February 1898, Spivak launched still another project, a journal called *Medical Libraries*, which he sold for $.50 a year. It had evolved from the *Monthly Bulletin of the Colorado Medical Library Association*, which he had published in the *Colorado Medical Journal* beginning September 1897. In launching a new journal, Spivak gave the following aims (18):

> "First—To encourage the founding of Medical Libraries and Medical Departments in Public Libraries, wherever the medical profession is fairly organized.
> "Second—To encourage the compilation of union catalogues of medical books and periodicals of private libraries, as outlined in our pamphlet, "How Every City May Secure a Medical Library."
> "Third—To further the project proposed by Dr. [George] M. Gould of Philadelphia of organizing a Medical Librarian's Association and the perfecting of plans whereby the wasted medical literature all over the world may be utilized.
> "Fourth—To gather statistical data, publish reports, news and historical sketches of public and private medical libraries and biographies, of medical librarians and book lovers."

To further the third aim Sewall and Spivak acted immediately, had a Local Committee on Libraries appointed by the American Medical Association, and

announced a meeting of medical librarians for June 6, 1898 during the Denver convention (19). Meanwhile, Dr. George M. Gould of Philadelphia, at the end of March, called a meeting in his office for May 2, 1898, a date which is regarded as the official founding date of the Medical Library Association. Spivak and Sewall were invited to attend, but sent regrets (20) expressing "their belief in the need of such an organization, and their earnest desire to co-operate in establishing it." Four medical librarians and three physicians met in Gould's office and organized the Association of Medical Librarians with Gould as the first president. The paper read by Gould on that occasion and an abstract of the minutes were sent to Spivak for publication in his journal (21).

There is a curious parallel development in the library-promoting activities of David Spivak and George M. Gould (22). In addition to practicing ophthalmology, Gould was a prolific writer of medical dictionaries, as well as being the editor of *Medical News* (1891-95) and the *Philadelphia Medical Journal* (1898-1900). In November 1896 he had sent a notice to the *Journal of the American Medical Association* offering his services as an intermediary for an exchange of books and journals between private donors and public medical libraries. This was intended to remedy the enormous waste of materials which occurred when physicians' private libraries were destroyed, and afforded public libraries the opportunity to build up their medical collections. In his notice Gould also listed duplicate books currently available for exchange in several medical libraries (23). In a paper on "The organization and support of public medical libraries" which he read before the American Academy of Medicine in Philadelphia on May 29, 1897, Gould reported that he had already arranged for the exchange of 3934 journals and pamphlets and 1921 bound volumes. He suggested that the exchange should be the function of "some corporate organization" and proposed that the Library of the Surgeon General's Office be made a "clearing house for gathering medical literature, and for founding and filling public medical libraries all over the United States" (24). When Gould's call went out for the organizing meeting, through Miss M. T. Charlton of Montreal, the letter mentioned: "It is proposed to form a Medical Librarian's Association, whereby the wasted medical literature all over the world may be utilized" (25).

The A.M.A. Committee on Medical Libraries proceeded with its plans for the June 6 meeting, which was attended by twenty-five physicians representing nearly as many libraries. Gould functioned as chairman and Spivak as secretary of the meeting. In his remarks explaining the work of the Association and particularly its plan to establish an exchange, Gould mentioned Spivak as one who "has expended a great deal of energy in this noble cause" (26). There was a discussion whether the medical librarians should affiliate with the American Library Association, whose Secretary, Melvil Dewey, had sent a letter to Spivak suggesting that delegates be sent to the A.L.A. annual meeting at Chautauqua, N. Y. in July and offering to make a medical section (27). Gould was appointed the delegate (28). Later, in the general session of the A.M.A., he succeeded in having the following resolution passed (29):

> "RESOLVED, That the American Medical Association unanimously approves of any ethical and legitimate methods of encouraging the organization, perfection and support of public medical libraries in all cities, towns and villages of the United States, and earnestly urges the members of the Association to aid in the formation and organization of such libraries."

Similarly Gould received the American

Library Association executive committee's endorsement of the principle of having medical departments in public libraries (30).

The relationship between Gould and Spivak never becomes clear. Both seem to have been working separately towards the same goals. Spivak's journal was sagging financially (the annual subscription rate had been boosted to $1.00 with the second volume), and Dr. Samuel A. Fisk of Denver wrote to prominent physicians asking for donations to enable Spivak to continue his work, which included laying "the foundation of a rational system of exchange of duplicate books and periodicals between libraries" (31). Sending $10.00, Osler replied, "Let me know at any time should he be in difficulties, and I would give an additional subscription. The publication is one which deserves the active support of the profession." Gould wrote, "Beg Spivak to keep it up!" With this encouragement Spivak announced in the July-August, 1899 issue details of a medical library exchange plan which was to be started July 1, 1899, and he listed various libraries and individuals who had already submitted titles (32). But a few months later, an announcement was made of the successful solicitation of funds for an exchange sponsored by the Association of Medical Librarians, and this became operative in Philadelphia on December 1, 1899 (33).

One wonders why the Colorado Medical Library Association was not listed in the September-October 1899 issue of *Medical Libraries* as a member of the Association of Medical Librarians (34). Perhaps the waning activity of the Colorado Medical Library Association after Dana left for Springfield in 1898 was responsible (35). However Spivak continued to print regularly the minutes of the association, and beginning with the January-February, 1900 issue *Medical Libraries* became the "Official Organ of the Association of Medical Librarians." This relationship lasted less than two years, the July-August, 1901 issue being, without explanation, the last to bear the Association's name. Beginning in January, 1902 and continuing for one year, the Association published its own journal, a quarterly *Bulletin of the Association of Medical Librarians*, with the editorial office as well as the library exchange located in Baltimore in the Library of the Medical and Chirurgical Faculty of the State of Maryland. By that time, William Osler was president of the Association, Gould having served through 1901.

If Spivak was piqued because his journal and his exchange had not become accepted as an integral part of the Association, there is no written evidence. "*Medical Libraries*," he wrote, "hails with delight the advent of another publication devoted to the interest of medical libraries, and extends fraternal greetings to the *Bulletin of the Association of Medical Librarians*" (36). After the December, 1902 issue his journal ceased publication. Both Gould and Spivak dropped out of the medical library movement after 1902. From hindsight it seems incredible to us today that a man of Spivak's vision, energy, and extensive knowledge of the medical library scene was not brought into an active role in national library affairs. As a fitting epilogue, the following philosophic, tongue in cheek note from Spivak appeared in the November 26, 1910 issue of *J.A.M.A.* (37):

Offer to Medical Libraries

"*To the Editor:*—The year 1898 will be known in the annals of medicine by an epoch-making event. In that year *Libraries*, a bi-monthly publication devoted to the interests of medical libraries, first saw the light of day in the city of Denver.

For several years it made its irregular and spasmodic appearance and closed its career in a blaze of glory A.D. 1902. Its circulation reached the astounding number of 120. What it lacked in numbers it made up in quality.

Among its admirers, subscribers and contributors it counted the foremost librarians of the day—Dana, Fletcher, Chenley, Billings, Grace Bryant, Fisher, Parsons, Dudley, Beer, Aheren, Putnam, Bowker, Meyers, Utley, Bowen, Noyes, Crunden, Chase, Dewey, Merrill and the medical luminaries—Osler, Chadwick, Keen, Da Costa, Musser, Simmons, Edward Jackson, Hare, Horatio Wood, Solis-Cohen, Hutchinson, Gould, Dock, Senn, Bonney, Solly, Shattuck, Bayard Holmes, Jacobi, Wilson, Sewall, Eskridge and many other makers and lovers of books.

Now comes the proud editor and publisher of said defunct periodical and offers to send to all medical librarians and to all who are interested in freak medical journalism complete sets of Volumes 2, 3 and 4 and incomplete sets of Volumes 1 and 5 for the asking, as long as the supply lasts. All the said sad editor asks in return is that these, his dear departed ones, be reverently laid out, decently shrouded, adequately coffined, properly epitaphed, securely inhumed and unostentatiously gathered unto their fathers in God's acre. He devoutly and prayerfully hopes for their resurrection."

Spivak soon turned his energies in other directions. A founder of the Jewish Consumptives' Relief Society, he helped to create its Sanatorium in 1904 (now the American Medical Center of Denver), and served as its secretary until his death in 1927. In addition to his numerous scientific articles, he continued his interest in the cultural aspects of medicine. He contributed the article on "Medicine in the Bible and Talmud" in the *Jewish Encyclopedia* (38), collaborated in compiling a Hebrew-Yiddish dictionary, published with the Yiddish poet, Yehoash, a work on Hebrew words in Yiddish, and wrote popular articles on physiology and hygiene for the Yiddish press. To the Colorado State Medical Society he read an annual paper on "Physicians in Fiction," discussing the depiction of physicians by famous authors (39). For the semi-centennial celebration of the Colorado State Medical Society he painstakingly compiled a bibliography of publications by Colorado physicians which he published serially in *Colorado Medicine* from 1919 to 1921 and issued separately as the volume *Medical Coloradoana* (Denver, 1922). One biographer mentions "his gentleness of character, his sympathy with the sick and needy [which] made him an ideal social worker, so that he was the idol of the Jewish masses, especially the poor and the proletarian, who counted him as their own" (40). Henry Sewall reported that even in his final illness his great scientific curiosity continued. Ill at home and sleepless, Spivak was preparing a dose of Epsom salts in a tumbler when, in the process of dissolving the salts, he struck the side of the glass with the spoon and discovered that the pitch of the note changed as the salts dissolved. More experiments were made, resulting in a note, "Acoustics in the study of 'solutions,'" published in the October 21, 1927 issue of *Science*, four days after his death on October 17 (41). Sewall commented, "For originality in thought, for initiative in execution, for unselfish devotion to the general welfare, for naive enthusiasm when new truths loomed, we shall not soon again see the like of Charles D. Spivak" (42).

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11. See n. 8 above. Editorialized "How every town may possess a general medical library," *Ibid.*, 440–441. Earlier publicity in the editorial "Medical libraries by co-operation," *Philadelphia Polyclinic*, Mar. 27, 1897. **6**: 135–136 and in Spivak's article "The union catalogue of medical books, and some of the private medical libraries in the city of Denver." *Colorado Med. J.* **3**(1897): 4 pp. (listed in *Index-Catalogue*).
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17. Fifth Revised Edition. 1898. Detroit, Chicago: R. L. Polk & Co. pp. 164–165.
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19. Circular reprinted in *Ibid.*, **1**(3): 14.
20. *Ibid.* **1**(4): 30.
21. They were also reprinted by Albert Tracy Huntington in his article, "The Association of Medical Librarians; past, present and future," *Med. Library and Historical J.* **5**(1907): 112–116.
22. Marjorie B. Wannarka speculated that they probably knew each other in Philadelphia, since they graduated from Jefferson within two years of each other and were both in practice in Philadelphia in the early 1890s. See her article, "Dr. George Milbry Gould: ophthalmologist and first president of the Medical Library Association," *Bull. Hist. Med.* **42**(1968): 269.
23. "Important notice concerning library wants and supplies," *J.A.M.A.* **27**(1896): 1116–1117; Editorialized, *Ibid.* 1114–1115. A further list was published in the Jan. 30, 1897 issue.
24. *Bull. Am. Acad. Med.* **3**(1897): 149.
25. HUNTINGTON, *op. cit.* (n. 21 above), 111.
26. Report of the meeting of medical librarians, held in Denver June 6, 1898. *Medical Libraries* **1** (5–6): 36.
27. *Ibid.* 38.
28. He read a paper on "The union of medical and public libraries," *Phila. Med. J.* **2**(1898): 237–240.
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33. *Ibid.* 123; see also *Ibid.*, 1900, **3**: 31.
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The Saga of Poison Ivy[1]

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Poison ivy is a member of the cashew family, known as Anacardiaceae. Linnaeus, about 1736, placed this low-growing shrub in the *Rhus* genus. There are innumerable types, many of which are of a poisonous nature. The nomenclature is most confusing,[4] the word *Rhus* being derived from the Greek meaning "flowing" (1). The most infamous is the *Rhus toxicodendron*, sometimes called *Rhus radicans* and known more popularly as poison ivy, poison oak, or poison vine. It is closely related to *Rhus vernix*, a tree growing to 20 feet and known as poison sumach, poison dogwood, poison elder, or poison ash. In the Orient, the *Rhus vernicifera* or lacquer tree is quite similar in characteristics (2).

Contact with the poison ivy leaf causes a contact dermatitis that is the bane of every Boy Scout's existence. The reader may consult any dermatological text to learn of the havoc wrought on the infernally itching integument by the shrub. Kligman (3) provides a comprehensive survey of contemporary information about the plant, and McNair (2) has provided a definitive overview in his monograph, although a half century old.

ORIGIN

Since *Rhus* is indigenous to North America, we have the dubious distinction of having introduced poison ivy to the rest of the world. Captain John Smith wrote about the "nuisance" plant in his *The General Historie of Virginia, New England and the Summer Isles* (4). Actually, he found the weed in 1623 in Bermuda, then known as the Summer Isles:

> The poysoned weed is much in shape like our English Ivy, but being but touched, causeth rednesse, itching, and lastly blisters, the which howsoever after a while passe away of themselves without further harme, yet because for the time they are somewhate painfull, it hath got it selfe an ill name, although questionlesse of no ill nature.

EARLY USES

Some tribes of American Indians found the *Rhus* vines useful in making a black dye, and the early settlers adapted this dye for an ink. The Indians of Baja California made a concoction of leaves for treating ringworm infections. The Potowotamies and Meskawkis pounded the root to make a poultice which they applied to affected areas in order to provoke swellings into bursting. Any pruritic side-effects were neutralized by

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[4] For example, a listing of the various species of *Rhus*, capable of causing *Rhus* dermatitis, in 1909 included *Rhus vernix*, *Rhus venenata*, *Rhus radicans*, *Rhus toxicodendron*, *Rhus diversiloba*, *Rhus Michauxii*, *Rhus floridana*, *Rhus vernicifera*, *Rhus succedanea*, *Rhus sylvestris*, *Rhus Griffithii*, *Rhus striata*, *Rhus perniciosa*, *Rhus chinesis*, *Rhus javanica*, *Rhus caustica*, and *Rhus lucida*.

treating with the jewel-weed. The Plains Indians apparently had little contact with the shrub, since its usual habitat is cool, damp, shady areas, and no antidote is recorded. The Homas Indians boiled the leaves to make a tea renowned for its invigorating and rejuvenating qualities. We wonder whether such therapeutic claims for the poison ivy plant could have been written by vindictive tribesmen for reprisals against the intruding settlers (5).

Poison ivy was not known in the greater part of the world until the mid-seventeenth century. It was first described by Jacques Cornut (Cornutus) in Canada in 1635, who was the first to illustrate the plant (6, 7). Five years later, the vine was brought to England, where the English admired it so much that it was actually planted as an ornamental shrub around their cottages. At least two English botanical treatises, Parkinson's *Theatrum* Botanicum (1640) and William Aiton's Hortus *Kewensis* (1789), include mention of the *Rhus* vine (8).

The plant is now found in nearly all temperate climates. As recently as 1950, it was introduced into South Africa (9). The method of spreading is not always known, but the crow is said to be responsible in part for its penetration (10).

EIGHTEENTH-CENTURY NOTICES

Paul Dudley, a Boston attorney who was also a distinguished naturalist, wrote about the *Rhus* vine in 1702 (11):

> The Poyson-Wood-Tree grows only in Swamps, or low wet Grounds, and is something like a small Ash, but much more like a Sumach, and therefore is by some called the Swamp Sumach, for the Twiggs, Leaves, and Shape are exactly like the Sumach, and it likewise bears a dry Berry.
>
> It never grows bigger than a Man's leg, nor taller than Alder, but spreads much, and several together, especially about the Stump or Roots or one that is cut down; as it is of quick growth, so it does not last long; the inside of the Wood is yellow and very full of Juice, as glutinous as Honey or Turpentine; the Wood itself has a very strong unsavory Smell, but the Juice stinks as bad as Carrion. Having thus described the Tree, we shall now proceed to give an account of its Poisonous Quality, &c.
>
> 1. And first, it must be observed that it poysons two ways, either by touching or handling of it, or by the Smell; for the Scent of it when cut down in the Woods, or on the Fire, has poisoned Persons to a very great degree. One of my Neighbours was blind for above a Week together, with only handling it. And a Gentleman in the Country, sitting by his Fire-side in the Winter, was swelled for several Days with the Smoak or Flame of some Poyson-Wood that was in the Fire.
>
> 2. A second thing to be remarked of the Poyson-Wood is, that it has this effect only on some particular Persons and Constitutions; for I have seen my own Brother not only handle, but chew it without any harm at all. And so by the same Fire one shall be poysoned and another not at all affected.
>
> 3. But then Thirdly, this sort of Poyson is never Mortal, and will go off in a few Days of it self, like the Sting of a Bee; but generally the Person applies Plantain Water, or Sallet-Oyl and Cream.
>
> 4. As to its Operation, within a few Hours after the Person is poysoned, he feels an itching Pain that provokes a Scratching, which is followed by an Inflammation and Swelling; sometimes a Man's Legs only have been poysoned, and have run with Water.
>
> My neighbour that was so sadly poysoned with handling it, told me one thing very remarkable of the Wood, and that is, that when he touched it, he plainly perceiv'd it to differ from the other Wood, that he was throwing up into his Cart; for it was as cold as a piece of Ice; and withal assured me, he could distinguish it blindfold, or in the dark, from any other Wood in the World, by its Coldness; but the poor Man is as much afraid of it, when he goes into the Woods, as of a Rattle-Snake. He further tells me, that he felt an itching in a few Hours after he had handled the Wood, but the swelling did not come on till in about three days.

Peter Kalm, in his *Travels into North America* (1750), extensively described

the vine and the use of its juice as a most satisfactory indelible ink. He noted not only its effects on those coming into contact with the plant, but also the variations in sensitivity by different individuals. Kalm also described various other poisonous plants and trees (12).

THERAPEUTIC USES

In 1788, a French physician and botanist, André Du Fresnay, introduced *Rhus* as a remedy for no less an ailment than chronic dermatitis (13). In a story told about him, he considered the vine to be an acro-narcotic, reminiscent of the use made of it by the California indians in the treatment of ringworm infections (14).

> One day when lecturing on Rhus at the botanical garden of Valenciennes, a mischievous student said to a young florist who was present, that the professor's account of the noxious properties of Rhus was incorrect, as the plant, grown in France, was perfectly innocent. To convince him of this he plucked some leaves and rubbed them freely on his hands, as he knew by previous experience he could do with impunity. The florist, thus persuaded, followed his example, but in a short time had occasion to repent his imprudence. The next day, finding himself in trouble, he consulted the student, who gravely assured him he had caught the itch somewhere, and advised him to rub into his hands half an ounce of citrine ointment, and to purge himself freely with mercurial pills. This, as you may imagine, did not mend matters, and finally Du Fresnay was made acquainted with the state of affairs. In about ten days the young man recovered from the effects of the Rhus, and to his great surprise found, that a chronic eczema of six years' standing, for which he had vainly sought relief, had disappeared at the same time.

John Alderson, a physician in Hull, England, said in "An Essay on the Rhus Toxicodendron with Cases of Its Effects in the Cure of Paralytic Affections and other Diseases of Great Debility," first published in 1792 (8):

> From the knowledge thus acquired, I am throughly convinced that it possesses as just a right to a place in the Pharmacopeiae as any other Plant to which the Faculty have recourse in their general practice. We have seen Cicuta, Columbo, Cardamine, and Foxglove in turn warmly recommended for the cure of diseases by the most eminent of the Faculty.

He advocated making a brew of six grains of powdered leaves of pubescent poison oak or sumach boiled down in water, prescribing a dose of one tablespoon three times a day for a variety of nervous diseases. Although he thought his results were good, he did note:

> In one Lady, a disagreeable sensation, a kind of angina, was repeatedly induced by only one-fourth of a grain; and in another, nausea, tremors, etc. by a third [of a grain]; yet in these instances, I now believe, that terror had a considerable share in producing those effects.

The concept of allergy was still in the future.

Others, likewise, tried members of the *Rhus* family for internal medication. Cow-itch, as it was popularly known in the outlying sections of Philadelphia, was thought to restore consumptives to health. In fact, it was even used at the Pennsylvania Hospital in about 1804 for this purpose. Unfortunately, follow-up studies were never published (15).

By 1817, it was becoming apparent that the use of poison ivy in treatment was far too dangerous. Jacob Bigelow, writing in *American Medical Botany*, commented that it is "too uncertain and hazardous to be employed in Medicine or kept in Apothecary shops" (16). Despite this warning, certain segments of the medical profession were experimenting with its uses as late as 1895, when one such physician even used it as an antiseptic in puerperal fever and septicemia (17)!

RHUS DERMATITIS

Even before Bigelow's warning, the Colonists were aware of the dangers of poison ivy. In 1798, William Horsfield, in his thesis presented to the University of Pennsylvania, "An Experimental Dis-

sertation of the *Rhus Vernix*, *Rhus Radicans*, and *Rhus Glabrum*, Commonly known in Pennsylvania by the names of Poison Ash, Poison Vine and Common Sumach," was aware that there were different means by which the symptoms were initiated (18):

> By the exhalation or effluvium of the plants. Although this may be questioned by persons, who have not had an opportunity of observing their effects, yet, the facts in proof of it are so numerous, and many of them so decided and unequivocal, that not the least doubt is to be entertained on the subject. . . . A second method is, the *smoke* of the burning wood. . . . Dr. Cooper was poisoned by the steam arising from a decoction of the rhus radicans. . . . By the actual *contact* of the leaves, stem, or branches of the plants. In this manner, I believe, the eruption is most generally excited. By the immediate application of the *juice* of the plants, to the external surface of skin, or by introducing it by inoculation, within the cuticle. In some persons, who can handle the leaves and branches without injury, the eruption is excited by the application of the juice to any part of the skin.

In a travel book published in 1792, William Currie had noted that poison ivy dermatitis existed (19). Yet, as late as 1829 a Dr. Dakin of Columbus, New Jersey wrote (20):

> Some apology is, perhaps, necessary for offering the following remarks to the profession; but I do not recollect ever having seen a treatise upon the subject; and if authors on cutaneous affections have mentioned it, it is those to whose works others, perhaps like myself, have not had access. Judging, however, from the remedial means generally resorted to, and which, according to my observation, rarely facilitates the cure, I am forced to believe, that this disagreeable affection has not received a due share of attention, probably from its seldom occurring in cities, and coming within the observations of medical writers. . . . I have just learned that Dr. Hobson of New York,[5] some time since, published a small work on this subject.

[5] Like Duhring a century ago, we have been unable to locate "Dr. Hobson of New York" (21). Perhaps, this mention of Dr. Hobson refers to a lay publication that is now lost to antiquity.

In 1851 Joseph Parrish, then the Editor of the *New Jersey Medical Reporter*, brought to the attention of the medical profession that an affliction by poison ivy conveyed no immunity, and repeated contacts with the vine induced repeated attacks of the dermatitis (22).

CHEMISTRY OF THE *RHUS* VINE

Little was known of the chemistry of the *Rhus* family of plants until 1797 when Van Mons published on the so-called "poisonous principle" of *Rhus*, stating it to be a volatile hydrocarbon, emitted by the plant only at night. As strange as it seems today, this theory was even supported by Lavini in 1825 (23).

More scientific approaches were also plagued with error. In 1858, John Khittel, a chemist in Munich, Germany, experimented with the plant (24). Using specimens from the public botanical garden, he found that he was able to extract "Chlorophyll, wax, fat, resin, sugar, albumen, gum, pecten, tannin, producing a green color with iron salts, oxalic acid, a peculiar indifferent body and a poisonous alkaloid."

At least two American observers were dissatisfied with Khittel's work. William Proctor, editor of the *American Journal of Pharmacy*, who published Khittel's work in America, was disturbed that he had not identified the specific poison in the alkaloid (24). Moreover, J. M. Maisch, in a paper read before the American Pharmaceutical Association, found that the poisonous element of the *Rhus toxicodendron* was not an alkaloid, but a volatile acid which he named Toxicodendric acid. Maisch also thought that drying the leaves, or boiling them down, disseminated so much of the volatile principle of the poison that little, if any, of the toxic substance could be obtained for study (25).

In the 1880s, the chemical theory was displaced by the doctrine of the newly

discovered world of bacteria. Poison ivy dermatitis was naturally held to be due to a micrococcus, and thus a true "contagium vivum" (26). Fortunately, this concept was short-lived, for in 1894 Franz Pfaff of Harvard Medical School demonstrated that Maisch's toxicodendric acid was merely acetic acid. Pfaff and Sanford, at the 1894 American Physiological Society meeting, announced that the poisonous quality was toxicodendrol which was present in all parts of the plant. This showed that both Maisch and Khittel were not keen observers (27).

From here, it was only a matter of time before the antigenic components could be identified as 3-pentadecyl catechol, known as hydrourushiol, an oleoresin common to most members of the Anacardiaceae family (28).

TREATMENT

Despite the multitude of writings, we are still woefully unaware of really effective therapeutic means. McNair (29) has listed at least 392 remedies. The list of agents is legion and ranges from boric acid through gunpowder, and onto zinc oxide.

Treatments for the past two centuries have included applying Diervilla *canadensis* (1827) (30), sipping a strong tea of sweet fern (1871) (31), applying bromine in oil (1837) (32), swallowing tincture of *Rhus* (1924) (33), more recently, taking hyposensitization either orally or intradermally (28), and even acupuncture. In fact, to quote Kligman (3):

> The long-standing effort to find an effective topical medication for acute poison ivy dermatitis is not one of the proud chapters in the history of medicine. "Furor therapeuticus" is much in evidence in the literature.

Perhaps, the Indians were not far wrong in suggesting that the jewel-weed be used to treat *Rhus* dermatitis!

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William Osler: Teacher[1]

By FRED B. ROGERS, M.D.[2]

In his book *The Art of Teaching*, Prof. Gilbert Highet of Columbia University, discussing nineteenth- and early twentieth-century teachers, wrote, "The good teachers liked most of their pupils and most of the rest of the world, and showed it. Some of them, like Osler, . . . were jolly high-spirited fellows, always cracking jokes and bringing students out as the sun brings out zinnias."

Highet placed Osler in the company of such outstanding teachers in this country as the naturalist Louis Agassiz and the psychologist William James, who were also medical doctors. Of these men he said, "As well as friendliness and vigor, the best nineteenth-century teachers had minds large enough to take in many different subjects and to relate them to their own lives. . . . The teachers who had most influence usually worked in three or four fields at once and combined their professional duties with a vivid and active private and public life. As well as being a physician, Osler was an amateur of the classics, a bibliophile, and a host of other things" (1).

It was largely because of his teaching skill that William Osler was invited to become Professor of Clinicial Medicine at the University of Pennsylvania. The careful observations made before this offer was extended came through in a letter, dated August 3, 1884, written from Paris, France, by Dr. S. Weir Mitchell to Dr. Joseph Leidy of Philadelphia. Mitchell wrote: "I saw Osler in London and was very much pleased with him and with all I heard concerning him in London. He is a most accomplished pathologist, physiologist and clinician, an admirable teacher, very popular and with the power of exciting interest in others. Socially a man for the Biological Club, if by any good luck we can get him. I may add that he has written a number of clinical papers which are spoken of very highly" (2).

By "good luck," or the toss of a coin, as Osler told it, the energetic Canadian professor came to Philadelphia and did well. He had a vibrant personality, worked in several clinical fields (pathology, neurology, internal medicine) and inspired both students and colleagues. He also met and married his wife, née Grace Linzee Revere, in the Quaker City. It is to recall the memory of both Sir William and Lady Osler that we are meeting in Philadelphia today.

Two of Osler's great talks pertained directly to teaching. They were "Teacher and Student" (University of Minnesota, 1892) and "Teaching and Thinking" (McGill University, 1894). Each discourse contains modern thoughts. In the former address (3) he cited "enthusiasm, . . . a full personal knowledge of the branch taught, and . . . a sense of obligation," as essential ingredients for the capable teacher. Osler prefaced these remarks with a quotation from Plato's *Republic* to the effect that "the direction in which education starts a man will determine his future life." In the latter talk (4), Osler stated that teaching and thinking were the two basic functions of a university and a medical school. He quoted Dr. William Harvey as an opener:

[1] Read before the American Osler Society at The College of Physicians of Philadelphia, April 5, 1974.

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Fig. 1. Sir William Osler, Bt., Regius Professor of Medicine, Oxford University; Editor of *Modern Medicine*. Photograph *circa* 1913.

"Nature her selfe must be our advisor; the path she chalks must be our walk. . . ."

"The physician," Osler added, "needs a clear head and a kind heart; his work is arduous and complex, requiring the exercise of the very highest faculties of the mind, while constantly appealing to the emotions and finer feelings." He cautioned, "Teachers who teach current knowledge are not necessarily investigators; many have not had the needful training; others have not the needful time. The very best instructor for students may have no conception of the higher lines of work in his branch, and contrariwise, how many brilliant investigators have been wretched teachers? In a school which has reached this stage and wishes to do thinking as well as teaching, men must be selected who are not only thoroughly *au courant* with the best work in their department the world over, but who also have ideas, with ambition and energy to put them into force—men who can add each one in his sphere, to the store of world's knowledge. Men of this stamp alone confer greatness upon a university. . . . Surrounded by a group of bright young minds, well trained in advanced methods, not only is the professor himself stimulated to do his best work, but he has to keep far afield and to know what is stirring in every part of his own domain."

The natural—we may call it the Osler-

ian—method of teaching clinical medicine, was described pithily by Osler in 1903 (*On the Need of a Radical Reform in our Methods of Teaching Senior Medical Students*) (5):

"In what may be called the natural method of teaching the student begins with the patient, continues with the patient, and ends his studies with the patient, using books and lectures as tools, as a means to an end. . . . The student starts, in fact, as a practitioner, as an observer of disordered machines, with the structure and orderly functions of which he is perfectly familiar. Teach him how to observe, give him plenty of facts to observe and the lessons will come out of the facts themselves. . . .

"The whole art of medicine is in observation, as the old motto goes, but to educate the eye to see, the ear to hear and the finger to feel takes time, and to make a beginning, to start a man on the right path, is all that we can do. We expect too much of the student and we try to teach him too much. Give him good methods and a proper point of view, and all other things will be added, as his experience grows."

Dr. Edgar L. Gilcreest of San Francisco, California, a protégé of Osler, wrote about his mentor (6):

"As a teacher he had no peer. He liberated the American medical student from the dull didactic lecture of the class room and took him to the bedside of the patient in the wards where he could study and observe diseases in all their phases. Today the student assumes lightly that medical education has always been thus . . . not realizing what a revolution in teaching this was and what an everlasting debt of gratitude he owes to this great physician. . . .

"Osler loved to teach. 'Students,' he said, 'were the inspiration of my life' . . . . Those he taught were stimulated by their association with him and went forth to the corners of the earth with a new outlook on life. His influence had left a deep and lasting influence on them."

Osler's ability to inform, instruct and inspire was conveyed by both the spoken and the written word. His writings—technical and otherwise—are filled with comments on teaching and teachers. He was himself the personification of effective teaching in the several universities where he served—in Canada, the United States, and England. Few medical teachers have made so many disciples from students—those who knew him personally, or indirectly through his prolific literary output. And many have consciously modeled their careers and lives after his advice and example.

Although it is difficult to say anything about Sir William which is not already familiar to this audience, I enjoyed going back to his writings in preparing my report about his teaching skill. Sir Humphry Rolleston, Regius Professor of Medicine at Cambridge University, emphasized the scope of Osler's genius when he noted (7):

"As a teacher his influence was much wider, though not so vivid as his personal contact, for his literary output was wonderfully extensive and covered half a century. . . . Altogether his contributions mounted up to more than a thousand. . . . So wide are they that any writer, especially if with a new idea, observation, or historical subject, would be well advised to find out before publication what Osler may have said on the subject."

Another friend of Osler's, Dr. Archibald Malloch, remarked (8): "One might imagine that such a practised writer as he had merely to sit down and compose a paper. But no, I had the privilege of arranging all his papers after his death, and saw that even his last important address, *The Old Humanities and the New Science*, had many drafts, first little bits of paper in pencil, then several

drafts in ink, and finally three typewritten copies before it was ready for the printer. . . . His writings were the model of clearness and brevity. In the summer of 1919 on the island of Jersey, I saw him go through the section on the nervous system in preparation for the ninth edition of *The Principles and Practice of Medicine.* He jubilantly showed me how he had eliminated several hundred unnecessary words. . . . Osler's meaning is clear, and more than that, ideas stick in one's memory because of his epigrams and deft use of words."

As a person passes through life, he or she meets certain people who can be termed 'unforgettable.' They enter into another's thinking and action. Osler had such an impact on many people—pupils, colleagues, patients and friends. Medical students, in particular, were lastingly influenced by Osler's performance. His qualities as a physician and teacher made them want to emulate him. He became their hero, and his deeds were heroic. Today, long after his lifetime, these qualities still inspire us. Douglas V. Steere, Professor of Philosophy at Haverford College, Pennsylvania, discussing 'Devotional Reading' in his book *Prayer and Worship*, wrote (9):

"Well-chosen biography is another source of reading that quickens devotion. This is especially true of that period in life when a life-work is being chosen, although there are few periods in later life when such a book may not deepen the life vocation of one already established. Allen's *Phillips Brooks* for the ministry; Cushing's *Life of Sir William Osler* (which one of my friends described as 'the most religious book I have read in years') for medicine; Schweitzer's *Out of My Life and Thought* for those who would see how a vocation of musician, physician, and theologian need not be mutually exclusive. . .—these are all good pasture."

To conclude, the modern physician-teacher derives comfort from words spoken by Osler at the opening of the Pathological Institute of the Royal Infirmary, Glasgow, Scotland, in 1911 (10):

"In the hurly-burly of today, when the competition is so keen, and there are so many seeking the bubble reputation at the eye-piece and the test-tube, it is well for young men to remember that no bubble is so iridescent or floats longer than that blown by a successful teacher. A man who is not fond of students and who does not suffer their foibles gladly, misses the greatest zest in life; and the teacher who wraps himself in the cloak of his researches, and lives apart from the bright spirits of the coming generation is very apt to find his garment the shirt of Nessus."

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The History of Cardiology and the Cardiac Motif in *Ex Libris*[1]

By NORMAN SHAFTEL, M.D., F.A.C.P.[2]

At the outset, let me confess that my initial interest in the bookplate (or *ex libris*) was kindled many a year ago by Dr. Sam Radbill while we were stationed at an Army installation in McKinney, Texas, in 1942. We were waiting for a hospital to be completed on that dry, dusty land, and while the hospital was still being built there were no patients and therefore considerable time for conversation and the playing of chess in empty wards. "Raddy" and I soon discovered our mutual interest in books and medical history. I had already begun to collect books in a most modest way and Raddy suggested that a bookplate would be an appropriate acquisition and adornment for my infant library. And so after the war was ended, with Raddy's knowledge and encouragement, I commissioned my first *ex libris*. Since then, for these some thirty subsequent years, it has been Dr. Radbill's example and enthusiasm, undiminished by the passing of decades, that has kept my interest in medical history and *ex libris* alive and even modestly productive. Understandably, the impetus, by gentle pressure, for this present paper was also supplied by this same dedicated, yet ever-amiable, Dr. Radbill.

Having discovered, to my surprise, that many antiquarian bookdealers do not know the meaning of the term bookplate (or its Latin equivalent, *ex libris*), it may follow that many other otherwise knowledgeable individuals would be equally confused or ignorant of the same subject. Therefore, permit me this brief explanation. A bookplate may be defined as any label or printed design (be it woodcut, engraving, etching, lithograph, linoleum cut, etc.) generally pasted inside the cover of a book to denote ownership. A medical bookplate would be one which includes some medical symbol or symbols (caduceus, skeleton, etc.). By an extension definition it might also include any type of bookplate belonging to a physician, but in the present paper we are not dealing with this latter variety.

The history of the bookplate, while not specifically germane to the purpose of this paper, may afford some valuable overview. The earliest bookplate (a non-medical one) was that of Igler, a German, *circa* 1450-70. Only two others of this century are known. Albrecht Dürer designed several between 1503 and 1524, but these also were non-medical in subject. The earliest dated bookplate (again non-medical) is that of Hieronymus Ebner, 1516.

The collecting of bookplates, as compared with the collecting of books, was very late in arrival but reached a peak toward the end of the nineteenth century. Subsequently, and inexplicably, the interest has lagged only to be somewhat revived within the past 20 years. It was in 1957 (and not until then) that a Mr. A.B. Keeves, editor of the *Bookplate Collectors News*, coined the term "philebrism" to denote the collecting of bookplates and "philebrist" to describe the individual so engaged. Most phile-

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brists are general collectors but some have specialized and limited their collections either on the basis of artist (or artists) involved, subject matter, etc. A very few have limited their collections to medical *ex libris* exclusively. Among this small group it is Dr. Radbill's name that leads all the rest. Raddy's collection numbers approximately 10,000 medical plates and is probably the largest of its kind in the world. By contrast, in 1910, Dr. Roland G. Curtin was proud of his collection of 1,500 plates among which were (but) 250 medicals.

Considering only medical bookplates, we recognize a small percentage illustrative of the owners' particular specialty; and here we have concerned ourselves with those specifically pertaining to cardiology. Of these there are relatively few, which is understandable, as the subspecialty of cardiology was one of the very latest to evolve. Dr. Radbill has reported that he lists about 80 such cardiac *ex libris* in his collection and there are approximately 50 such in the author's bookplate collection but there are undoubtedly duplications in the two lists.

It would be inaccurate to state that a comprehensive history of cardiology could be reconstructed from the material displayed on medical bookplates; yet, a respectable framework could be so erected. For example, one can find illustrations of the heart and vessels, of the tools and procedures of cardiac diagnosis, and also portraits of some of the great figures in the history of cardiology.

To my knowledge, the earliest illustration of a heart, although stylized rather than anatomically accurate, is seen on an *ex libris* of Johannes Raceberg of Weimar (*circa* 1570). Another, dated 1681, of Johannes Loelius, Philosophiae et Medicinae Doct., depicts a lion (atop a shield) holding in its right paw a heart surmounted by a crown. In more recent years we find bookplates with more or less anatomically accurate representations of the heart. Sometimes other cardiac, or medical, symbols also appear on the same plate. A good example of a typical anterior view of the heart, great vessels and coronary circulation is seen in the woodcut *ex libris* of F. J. v. Mervennee (Plate 1). In the foreground is seen a lighted torch encircled by a snake (a caduceus equivalent) and at the sides of the flame the Latin words "Ultima Latent". Other bookplates including the heart combine it with a syringe (Roger Lecomte), a microscope (Emil J. Bologa) or the foxglove (Ingvar Sterner).

In 1785, William Withering of Birmingham, England, published his *Account of the Foxglove* and revolutionized the treatment of cardiac edema. The plant, digitalis purpurea, a charming purple flower, parent of the drug digitalis, is portrayed on several bookplates. On the woodcut by the fine Dutch artist Pam Rueter for Sven and Gunnel Holmgren we see the digitalis plant growing out of a heart-shaped area enclosing two

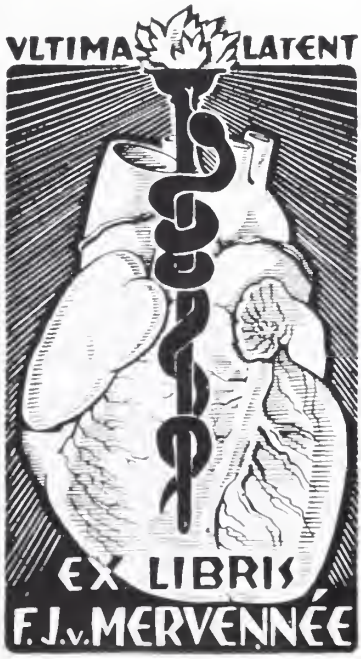

Plate 1.

crossed staffs, each encircled by a serpent. The owners' names in block letters outline and shape the heart (Plate 2). The author possesses a personal plate by the Spaniard Alexander Coll, which shows the plant lying across a book open to an illustration of the heart. An eighteenth-century drug jar labeled "Digitalis" is seen in the background.

Two of the most important diagnostic tools of cardiology were described by Auenbrugger (percussion) in 1761 and by Laennec (auscultation) in 1819. Auenbrugger's contribution was almost completely ignored until publicized by Corvisart (physician to Napoleon) in 1808. It is also surprising, and a little sad to relate, that I know of no illustration of percussion that appears on a bookplate. Hopefully this lapse will be rectified in the near future. Laennec, perhaps the greatest clinician of all time, has enjoyed a more fruitful fate. The stethoscope, in many of its evolutionary modifications, is frequently reproduced on bookplates. The bookplate engraved by the well known and highly respected Dutch artist, Engelien Reitsma-Valenca, for Norman Shaftel, illustrates the happy

Plate 2.

Plate 3.

juxtaposition of the inventor (Laennec) who holds the parts of his original monaural stethoscope in his hands (Plate 3). In the 20 years succeeding its invention, the monaural stethoscope underwent several modifications and some of these can be seen on the *ex libris* of Drs. Ludwika Koniora, D. Slager, Laszlo Sapy and Augustin Belai. The binaural stethoscope was introduced about 1852 by Dr. George P. Cammann of New York. Various types of this more modern variant may be seen on the bookplates of Drs. Jan van Bloemen, Gerhard Kreyenberg, Teresy Grabowskiej and Otomar Olsovsky.

Man has been aware of the pulse since before the Christian era but it had not been accurately counted until 1707 when Sir John Floyer introduced the pulse-watch. I have seen only a few plates which demonstrate this procedure. One was the bookplate of Dr. E. MacDowel Cosgrave, a professor of biology and president of the Royal College of Surgeons of Ireland. Dr. Cosgrave's plate, printed before 1918, shows a centrally placed shield containing a harp and an illustration of pulse-taking (Plate 4). An

Plate 4.

oil painting by the seventeenth-century Dutch genre painter Jan Steen, depicting a doctor taking the pulse of an elderly woman (while the doctor holds a urine flask in his free hand), is reproduced in the bookplate for W. Nieveen of the Netherlands. The *ex libris* of Kurt Geiling shows a physician, standing in front of a portly elderly lady, who is seated, taking her pulse with one hand while holding a monaural stethoscope in the other.

One of the more important and possibly most frequent and publicized examinations in cardiology is the blood pressure determination. The first determinations were made experimentally on animals (column of blood) by Stephen Hales in 1733 and by the use of mercury by Poiseuille in 1828. The sphygmomanometer, more or less as we recognize it today, dates back less than 100 years. In the author's collection of approximately 4,000 medical *ex libris* there is only one which illustrates this instrument. It appears in the etching by Erich Greiner for Johannes Freitag Dr. Med. In the same bookplate is also seen a book open to an illustration of the heart, a monaural stethoscope (vintage 1840) and a caduceus (Plate 5).

The discovery of the X ray, by Roentgen in 1895, opened up a rich field for cardiac diagnosis and investigation. The early form of vacuum tube, later used by Roentgen, was discovered by, and named after, the British physicist, Sir William Crookes, whose *ex libris* includes this tube. The bookplate of J. Fortuyn Droogleever (a woodcut by D. Van Luyn) demonstrates the X-ray appearance of the heart and rib cage, in white against a black background (Plate 6).

The most recent, and most important, cardiac tool, the electrocardiograph, was invented by Einthoven in 1903. It may be of particular interest to Philadelphians that the first to use this instrument in the City of Brotherly Love was the cardiologist Joseph Sailor. Dr. Radbill advises me that the good doctor brought his electrocardiograph machine to the home of Dr. Radbill's father who

Plate 5.

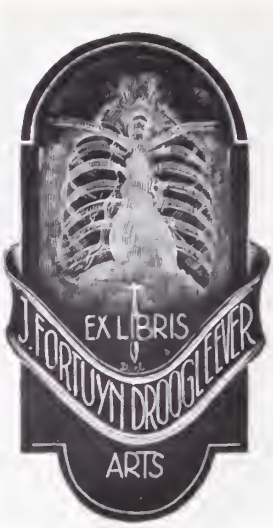

Plate 6.

required this examination at the time. Dr. Sailor possessed a personal bookplate, but sad to relate it did not illustrate this early form of the machine. Nor do I know of any other which pictures this machine, although there are at least a handful which show the electrocardiogram. Perhaps the most remarkable in this regard, certainly from a historic point of view, is that of Dr. Frank N. Wilson. Dr. Wilson is credited with the original explanation for bundle branch block (1930), and he also introduced the concept of the central terminal and with it the unipolar leads (1934). This bookplate is almost a primer in electrocardiography. We see the Einthoven triangle, schematic explanations of the various elements of the principal complex and even the appearance of the QRS complex in limb, unipolar and precordial leads. Also included are the seal of the University of Michigan and the dates of Dr. Wilson's degrees of B.S. in 1911 and M.D. in 1913 (Plate 7). There also exists a modification of this plate which, in addition, adds a panel including a portrait of the owner and a statement concerning the establishment of a Frank Norman Wilson Lectureship in Cardiology. Dr. Radbill has kindly shown me

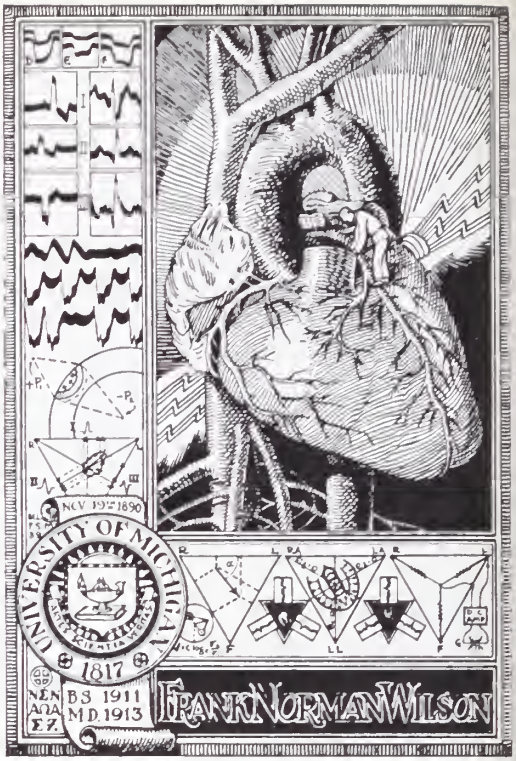

Plate 7.

the *ex libris* of Dr. Xavier Francas and of Dr. Otto Kuch which contain strips of electrocardiograms as part of the design. Among my personal bookplates there are two with electrocardiographic illustrations.

Although the greatest "cardiologist" of them all, William Harvey, did not possess a personal bookplate, other well-known cardiologists did. Among these may be mentioned Laennec, Parry, His, Aschoff, Allbutt, Emanuel Libman, Paul Dudley White, P.M. Latham, Myron Prinzmetal, F.A. Willius and F.M. Groedel. Unfortunately, the subject matter of these plates does not refer to cardiology and therefore they do not fit properly within the established confines of this brief paper. Again, unfortunately, there are but few portrait bookplates immortalizing the greats of cardiac history. There is the one with Laennec's portrait already referred to (Plate 3) and another with a superbly executed wood-

cut portrait of William Harvey, engraved by the Dutch artist Mar de Jong for Norman Shaftel (Plate 8). In the collection of Dr. Radbill is a bookplate for Dr. Frederico Gomez de la Mota which contains a portrait of Servetus, who first described the pulmonary circulation. This plate carries the motto, "*Ars Longa Vita Brevis.*" The portrait of Austin Flint is found on one of the *ex libris* of the New York Academy of Medicine, that of William Osler on a Myron Prinzmetal bookplate, and the Frank Wilson plate has already been mentioned.

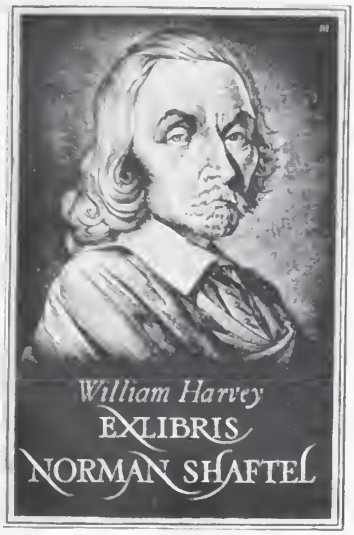

Plate 8.

It would be not only delinquent but dull to neglect the frivolous aspect of the cardiac bookplate. Such *ex libris* are to be treasured as they represent the result of artistic fancy and imagination. They are delightful and pertinent. I include here the *ex libris* of Dr. Kertesz because it beautifully illustrates the imaginative and comic and also because I have unwittingly neglected the veterinarian. Dr. Kertesz's plate was engraved by the Hungarian artist Mihaly Gasci in 1962. The central theme is the auscultation of a sickly horse. This poor animal is seen to have a splinted, fractured leg, another limb has suffered an amputation, and there is a wooden prosthesis. In addition, there is a bandage about the neck, a patch over one eye and it is obvious that the animal is suffering from malnutrition. Off to the side are seen a tool box, syringe, intravenous equipment and various and sundry instruments hung on a wall. In the panel to the right is the veterinarian's sign, a skull (a horse's, of course) and cross bones (again that of a horse) above the doctor's name. Below, the artist has drawn a bearded bohemian (ostensibly the artist himself) holding in one hand a bottle (undoubtedly spirits) and in the other a glass (undoubtedly containing an alcoholic beverage). Here he has signed his name in script, and very

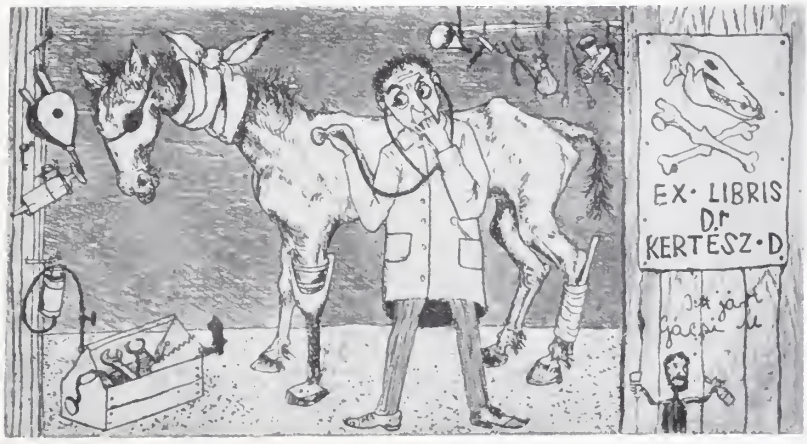

Plate 9.

well he might (Plate 9). There is another amusing bookplate by R. Kivit, an Estonian artist living in Germany, for Dr. Kallistrat Liik. Here is seen a worried, bespectacled veterinarian, on his haunches, listening with a monaural stethoscope to the heart beats of a saddened pig. Also seen are a dog with his paw in a sling, a cow with a bandaged jaw and what appears to be a healthy horse looking upon the scene benevolently. On the floor is a snake whose tail is wrapped about the doctor's foot.

Although in these unpredictable times it might appear unwise to prognosticate, I feel it safe to suspect that the future will discover bookplates illustrating cardiac catheterization and the various types of cardiac surgery including valve replacement, coronary bypass and heart transplant. And perhaps some of the readers will rectify the omission of portraits of such worthies as Auenbrugger, Lower, Mayow, etc. by commissioning such bookplates to enhance their libraries. Perhaps Dr. Radbill will discover other bibliophiles, receptive to his gentle blandishments, who will further extend the history of cardiology as portrayed in the bookplate.

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The Evolution of Child Care in Scotland[1]

By H. P. TAIT, M.D., F.R.C.P. EDIN., F.F.C.M., D.P.H.[2]

Throughout the domestic history of Scotland, children stood low in the scale of value. Until the mid-nineteenth century, the struggle for existence was always predominant, and until he was able to work the child was regarded almost as an encumbrance. In the face of constantly recurring famines and epidemics of infectious disease, death of children was often looked upon by poorer parents rather as a benevolent act of God. Various attempts were made from early times to improve the lot of the child, but in the face of existing conditions little real progress was made or could be expected. The success of the great sanitary movement of the nineteenth century had produced little improvement in child health by the dawn of the present century when infant and child mortality still remained appallingly high. This failure of the sanitary era gave birth to real and practical interest in child health and welfare, and the present century has witnessed remarkable changes for the better. But much remains still to be done and new and unsuspected dangers have made their appearance, an example of which has been discussed by Radbill (1968).

In this paper, child health and welfare in Scotland from early times will be reviewed briefly and reference will be made to the development of pediatrics as a specialized branch of medicine.

FAMINE AND PESTILENCE

That a heavy toll of child life occurred during the regularly recurring famines and epidemics of infectious disease is undoubted. Not until 1855 when registration of births and deaths became compulsory are accurate statistical data available. From a variety of sources prior to that time, however, some indications were given of child mortality. Smith (1776) alluded to "the great mortality" which occurred particularly among poor children even when famine and pestilence were absent.

Of infectious diseases, smallpox was a most terrible destroyer of children from the sixteenth to the mid-nineteenth centuries. In Aberdeen in 1610, the "plague of the pox" wrought havoc among the children. In Kilmarnock between 1728 and 1764, of 662 deaths from the infection, at least 606 were in children under ten years. In the burial registers of Edinburgh from 1764 to 1783, for every 1,000 deaths from smallpox at all ages, 993 were in children under ten. Even as late as the period 1855-65, of over 10,500 deaths from smallpox in Scotland, two-thirds were in children under five years. It was this high mortality in young children which led to the introduction of compulsory vaccination of all infants under six months of age in 1863.

Sinclair (1825) described how in the eighteenth century great fires were kept burning in the rooms where two or more children with smallpox lay gasping in bed under a great weight of clothes while whisky and saffron were freely administered.

Kennedy (1715) referred to a form of inoculation practised in the Highlands "where they infect their children by rubbing them with a kindly pock, as they term it." The inoculation procedure as described by Timoni and Pylarini was practised at Aberdeen by Maitland, sur-

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geon to Lady Mary Wortley Montague. Religious objection to the procedure was frequent, but the majority of parish ministers enthusiastically embraced the new measure and, owing to the lack of physicians, themselves performed the operation "before sermon" on Sundays.

The Royal College of Physicians and Surgeons of Glasgow, recognizing the value of Jennerian vaccination, was among the first in Britain to open a vaccination station (1801). But vaccination was only slowly adopted in the country. Sinclair proposed the instruction of midwives in the technique and suggested also the training and appointment of itinerant vaccinators.

Compulsory routine vaccination of infants, with provision for exemption on conscientious grounds, remained in operation until 1948, but became voluntary until 1971, when it was abolished altogether.

Measles first appeared in Edinburgh in 1735, and thereafter several outbreaks occurred during the next century and a half. Robert Watt (1774-1819) of Glasgow studied outbreaks in that city during 1807-08 and 1811-12 when the death rates were high. His epidemiological studies were, unfortunately, not continued after his death, and for a generation or more little real knowledge of the behavior of measles is known. The Registrar-General reported that for the period 1855-60 the mortality rate was 44 per 100,000. Today the rate is nil.

Francis Home (1719-1813) of Edinburgh applied the principles of smallpox inoculation to measles (1759) and claimed success for his method, but his work was soon forgotten. Modern vaccination, introduced in 1967, has already reduced the incidence of the infection.

Scarlet fever, first noted in Scotland by Sibbald (1684) was for long confused with diphtheria and went under the name of "putrid sore throat." Severe epidemics occurred during the nineteenth century, but the mortality rates were always much below those for measles and smallpox.

Diphtheria, probably first described as a clinical entity by Francis Home (Home, 1942) in its laryngeal form (croup) was apparently common in some parts of the country during the eighteenth century, where it was described as the most fatal disease of children in these parts (Statistical Account, 1791-99). Active immunization of children was first introduced on a large scale in Scotland in Edinburgh in 1924, since when rapid strides have been made in prophylactic measures.

Whooping cough (*chin-cough, kink-host*) was a constant contributor to child mortality, according to Watt, who wrote a detailed account of the disease (1813). In 1904 the death rate from whooping cough was 52 per 100,000. Today the rate is nil.

In 1855 all deaths from the principal infectious diseases accounted for 16.2 per cent of the total deaths. In 1954 the comparable figure was 0.06 per cent.

Brief mention might be made of tetanus neonatorum (*fifth-night disease, eight-day fever*) which was such a scourge in the Hebrides and especially in the island of St. Kilda. Between 1863 and 1899, of 49 deaths of infants under one year of age there, at least 28 were attributable to this infection.

CHILD CARE

In eleventh-century Scotland, the saintly Queen Margaret made herself personally responsible for the daily care of nine orphans. In the thirteenth century, an ordinance forbade mothers putting their babies in the same bed as themselves because of the danger of "smoor-ing" or smothering. In pre-Reformation times, many orphans and the children of

poorer folk found succor in monasteries and other religious houses.

From 1650 until 1845 the Reformed Church (or Kirk) in Scotland found itself responsible for the administration of the country's harsh and oppressive poor laws. This was done through the local kirk sessions many of which attempted to carry out their duties in as humane a way as was possible. But with the emphasis on servitude and the requirement that orphan and poor children must work by being bound over to masters, the seeds of child labor were sown. Many poor parents, even for temporary security, would bind over or "arle" their children as early as baptism to their masters for whom the children were required to work until the age of thirty years.

From 1800 until 1850 the inexorable advance of the Industrial Revolution exposed the child to even more exploitation and misery. Child labor became the rule. It was to prevent the prostitution of child life in factories that Robert Owen started his infant school at his mill at New Lanark in 1816. For destitute boys and girls the industrial or "ragged" school movement was initiated by Sheriff William Watson at Aberdeen in 1841 and continued by Chalmers and Guthrie. Even the reformed poor law of 1845 still left the poor and orphaned child with a hard lot. Meantime a champion of children in Parliament had appeared in the person of Lord Ashley, later Earl of Shaftesbury, who, by his unremitting exertions strove successfully, and one by one children were excluded from various industries.

For centuries almost barbarous measures were adopted by the Church to suppress illegitimacy and immorality, but these proved of little avail. The Kirk was particularly severe being for long more concerned with submitting offenders to church discipline than with the welfare of the mother and her infant. It was the dread of this discipline that drove so many girls during the seventeenth and eighteenth centuries to destroy their offspring in the hope of concealing their fault.

Baby farming with its attendant dangers became common during the nineteenth century and Jessie King, a notorious baby farmer in Edinburgh paid the supreme penalty for her crime as a mass child murderer in 1889, being the last woman to be hanged in that city.

A series of child protection acts culminated in the Children Act, 1908, the children's charter, which ushered in a new era for the protection of children from ill-treatment, cruelty and neglect. Present day legislation stems from this pioneer Act.

THE HEALTH AND WELFARE OF THE INFANT AND SCHOOL CHILD

To learn of the many dangers to which the infant before, at and after birth was for long thought to be exposed any book on folklore may be consulted.

During birth such help as was available was given by midwives who acquired their art by usage or heredity. During the eighteenth century efforts were made with considerable success to train midwives. Edinburgh town council founded a chair of midwifery in 1726 with the object of providing practical and theoretical instruction for midwives who were also required to be registered if practising within the city. The influence of William Smellie (1697-1763) reached even the remoter parts of the country, and progressive parish ministers, with the blessing of the Kirk, sent midwives chosen by the kirk sessions to men-midwives for instruction. Such courses were offered at Aberdeen (1758), Glasgow (1759) and Dundee (1801). During the last century various obstetricians at vol-

untary maternity hospitals gave courses to midwives and issued certificates of proficiency. Not until 1915, however, was a national system of training, registration and supervision of all midwives introduced.

The present century opened with high maternal and infant mortality rates, and Scotland was in the van of the maternal and child welfare movement in Britain. John William Ballantyne (1861-1923) introduced ante-natal care and wrote extensively on the pathology of the foetus and on diseases of infants. Archibald Kerr Chalmers (1856-1942), when medical officer of health for Glasgow, was a leader in the infant welfare movement. Infant milk depots were opened at Leith (1903), Glasgow and Dundee (1904) and following the passing of the Notification of Births Extension Act in 1915, maternal and infant welfare services were organized by all local authorities.

The few schools existing prior to the Reformation underwent radical changes with that religious revolution. The noble plans of the Reformers, led by John Knox, to establish schools in every parish in the country were thwarted by constant religious and civil strife. Not until the mid-eighteenth century was much progress made but, following a spurt in the number of schools established from that time, we can date the entry of Scotland into the world of affairs, of art, literature, philosophy and medicine. Nevertheless educational facilities were generally poor, the schools were small, cramped and airless, and the pupils were too often poorly nourished and lacked medical care and supervision. In 1872 the educational system of the country was reorganized, its administration became entirely secular, compulsory education was introduced, and the foundation of today's modern system firmly laid.

It was the introduction of compulsory education that brought to light the extent of poor health among school children. Many were poorly nourished, a high proportion suffered from physical defects, all of which interfered with the children benefiting from the education provided. Provision was therefore made in 1908 for a system of medical inspection of all scholars and the serving of dinners to necessitous children. Medical treatment, including dental care, was introduced in 1913 and so a school medical service was thus inaugurated, being supplemented by the development of child guidance centres, at first provided by voluntary bodies, during the 1920s. The subsequent dramatic improvement in the physical health of school children needs little comment.

The infant and school health services, both local authority activities from their inception, were, from April 1, 1974, absorbed into the reorganized and integrated National Health Service.

The first special school for the deaf and dumb in Britain was founded at Edinburgh in 1760 by Thomas Braidwood. For blind children the first school in Scotland was opened at Edinburgh in 1835. In 1852 a residential home for mentally defective children was opened at Baldovan, near Dundee, to be followed in 1862 by the foundation of the Royal Scottish National Institution at Larbert.

TREATMENT OF THE SICK CHILD

In the earlier centuries, certainly among the poorer classes, treatment of the sick child was confided to the "skilly" or "wise" woman, considered an expert at warding off malevolent spirits and of restoring health by charms, incantations and herbal remedies (Ritchie, 1954). This lady lived dangerously and might easily find herself on the path to the stake and tar barrel, for many of the Scottish witchcraft trials contain refer-

ences to attempts to cure children by unlawful arts. Such included the use of a decoction of foxglove leaves (*foxter*) and this was a much more dangerous remedy than the use of occult powers could have been. But the gross empiricism of the trained physician, too, exposed the sick child to considerable dangers. There was little to choose between the Scylla of the skilly woman and the Charybdis of the physician.

Lithiasis among little boys was apparently common during the sixteenth and seventeenth centuries and in Glasgow was clearly causing concern in 1661, for the town council agreed "to pay yearlie to Evir McNeill that cutis the stone ane hundreth markis scotis." Numerous kirk session records reveal payments being made to surgeons for operating on boys afflicted with "the stone."

With the upward surge of interest in the hygiene of childhood during the eighteenth century and the development of a more scientific approach to medicine, a better type of physician appeared who regarded the child with kindlier eyes than his predecessors, and we begin to see the foundations of modern Scottish pediatrics being laid.

SOME NOTABLE PEDIATRIC WRITERS AND TEACHERS

Doubtless much influenced by William Cadogan, both William Smellie and William Hunter (1718-83), as obstetricians, wrote and lectured on the diseases of the newborn.

The first pediatrician worthy of the name was Patrick Blair (?1660-?1728), a general practitioner at Dundee who described himself as having had "several Years experience in the Diseases of Children, and applied myself to that part of the Practice of Physic." He first described the clinical features and pathology of congenital hypertrophic pyloric stenosis in the *Transactions* of the Royal Society in 1717.

Robert Whytt (1714-66), professor of the practice of physic at Edinburgh, gained everlasting fame by his description of tuberculous meningitis or "Dropsy of the Brain" published posthumously in 1768.

George Armstrong (1719-89), a native of Newcastleton, Roxburghshire, and brother to the better known John Armstrong, the physician-poet, published his "Essay on the Diseases most fatal to Infancy" (1767), the best pediatric treatise of the time in English. He founded the Dispensary for Poor Children in London (1769), the first institution of its kind in Europe. Maloney's memoir on the two brothers Armstrong is exhaustive (1954).

William Buchan (1729-1805) was one of the outstanding pediatricians of the eighteenth century. Clearly influenced by Cadogan and his own observations when physician to the foundling hospital at Ackworth in Yorkshire, his pediatric writings were directed towards preserving and maintaining health in childhood. His advocacy of training young girls in child hygiene was refreshingly modern. His *Domestic Medicine*, an early form of household physician, was for long the reference book for many a Scottish household. It was a monument of good sense, sound advice, simply expressed. It went through fifteen editions during his lifetime.

In the nineteenth century, notable contributions to pediatric literature were made by Scottish graduates. Of these we may note: John Cheyne (1777-1836), better known for his description of what is now known as Cheyne-Stokes respiration; John Bunnell Davis (1780-1824), whose advocacy of infant clinics, advisory leaflets on health matters, and home visitation by those we would now call public health nurses, were eminently

modern ideas; Fleetwood Churchill (1808-78); and James Frederic Goodhart (1845-1916), both of whom wrote useful works on diseases of children.

The outstanding figure in Scottish pediatrics was undoubtedly John Thomson (1856-1926) of Edinburgh. Following graduation, he spent a period of study on the Continent before returning to his native city where he immediately started a special clinic for children at one of the dispensaries to which he had been appointed physician. Joining the staff of the Royal Edinburgh Hospital for Sick Children in 1887, he began teaching undergraduates in 1891. Pre-eminently an investigator and clinical observer, he was ensured world-wide recognition for his *Clinical Study and Treatment of Sick Children* (1898, 1908, 1921, 1925). One of his most delightful and helpful writings was his *Opening Doors* (1923), a book "for the mothers of babies who are long in learning to behave like other children of their age." Honors came freely to Thomson, including honorary membership in the American Pediatric Society (1903). An ardent admirer of L. Emmett Holt, Sr., Thomson had a portrait of him hung in the place of honor in his study (McNeil 1957; Craig, 1968).

A great friend and colleague of Thomson was Leonard Findlay (1878-1942) of Glasgow, a colorful personality of great energy (Graham, 1957). Appointed first occupant of the chair of medical pediatrics at Glasgow in 1924, he resigned in 1930 to pursue his studies in England. His influence on Scottish and especially Glasgow pediatrics was immense.

Charles McNeil (1881-1964), the first occupant of the chair of child life and health at Edinburgh (1931), was a pediatrician and teacher in the John Thomson tradition. His pioneer work on neonatology and long-term studies of premature and handicapped children were noteworthy.

CHILDREN'S HOSPITALS

The first children's hospital to be founded in Scotland was at Edinburgh in 1860 when a small building with twenty-four beds was opened. More commodious accommodation was obtained in 1864. A surgical department under Dr. Joseph Bell, the original of Sherlock Holmes, was established in 1887. The present hospital was built and opened in 1895 with a complement of 118 beds, now 212 (Craig, 1970).

Glasgow was second in the field, and a hospital was founded there in 1882 at Garnethill. The present Royal Hospital for Sick Children was built at Yorkhill and opened in 1914, since when it has been rebuilt.

The Aberdeen hospital for sick children with 14 beds and an outpatient department was founded in 1877, becoming a Royal Hospital in 1894. In 1929 the present hospital at Foresterhill was opened with 181 beds (Craig, 1968).

A ward for sick children was opened at Dundee Royal Infirmary in 1883, since when accommodation has been much increased. An Infants' Hospital was established in 1915 for sick children under five years old.

The first special orthopedic hospital for children in Scotland, the Princess Margaret Rose Hospital, was built at Edinburgh and opened in 1932.

PEDIATRIC TEACHING AT MEDICAL SCHOOLS

In the later years of the eighteenth century, Alexander Hamilton and his successors in the chair of midwifery at the University of Edinburgh gave some instruction to medical students on children's diseases but this is likely to have been very sketchy and inadequate. To remedy the situation as far as Edinburgh was concerned, William Campbell

(?1788-1848), an obstetrician, gave special courses of instruction in children's diseases to medical students attending an extra-mural college, Queen's College, at which Campbell was a lecturer. He set class examinations and issued certificates to successful students, but following his death the courses lapsed since no successor was sufficiently interested.

In 1871 lectures on diseases of children were given at the extra-mural school of medicine in Edinburgh, and in 1885 the university granted the status of lecturer to two physicians on the staff of the Royal Hospital for Sick Children, extended in 1900 to the whole senior staff of the hospital. Attendance at courses of instruction became mandatory for graduation at the university in 1912. In 1930 a chair of child life and health was endowed, the first such chair in Britain. The new name of this chair was a clear indication of the trend of affairs in the field of pediatrics. A lectureship on the pathology of disease in childhood was endowed in 1935, the same year in which clinical instruction in the care of the newborn was instituted at the Simpson Memorial Maternity Hospital.

In Glasgow facilities for clinical instruction existed from about 1882, and academic teaching on pediatrics was given at St. Mungo's College from 1889. Clinical instruction became compulsory before graduation in 1911, the same year in which a lectureship was founded. In 1919 lectureships in the medical diseases and in surgery and orthopedics in relation to childhood were instituted. In 1924 a chair of medical pediatrics was founded, the name of the chair being altered to that of child health in 1947.

In Aberdeen instruction in children's diseases was first given by the professor of midwifery in 1861 and continued by his successor until 1892 when separate teachers in pediatrics were recognised. A lectureship was instituted in 1929 and in 1947 a chair of child health was endowed.

A lectureship in pediatrics was established at Dundee in 1908 when organized courses of teaching became available. A chair of child health was endowed at St. Andrews University in 1950 and transferred to Dundee University when that institution was separated from St. Andrews in 1967.

PEDIATRIC SOCIETIES

In 1922 the Edinburgh and Glasgow Pediatric Club was formed to promote friendship and intercourse between the pediatricians of the two centres. In 1946 it was decided to enlarge the membership and form a Scottish Pediatric Society which was constituted the same year. A Scottish Surgical Pediatric Club was formed in 1948.

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ERRATUM

The Editor regrets that the article entitled, "1875: Birthday Honors for Claude P. Brown, M.D.," (41:278-280, April, 1974) was incorrectly ascribed to Katharine R. Sturgis, M.D. The author should be listed as J. Woodrow Savacool, M.D.

On the Reading of Medical Classics[1]

By OWSEI TEMKIN[2]

In his *Areopagitica* John Milton wrote (1):

> For Books are not absolutely dead things, but do contain a potencie of life in them to be as active as that soule was whose progenie they are; nay they do preserve as in a viall the purest efficacie and extraction of that living intellect that bred them.

To modern medical library practice, these well-known words constitute something of an embarrassment. The huge increase in the production of books and the speed with which contents become obsolete have forced libraries to handle their books as subject to aging and even to death. Active life is limited to about twenty years, when they are "cut off" and retired as elderly to less accessible areas. Those which pass through the process of aging are resuscitated in the historical collection.

In past times, scientific progress was slow compared to ours; important new discoveries were made at lengthy intervals, and the conservatism of many universities prolonged the lives of authoritative works. In 1644, when the *Areopagitica* was published, not only Hippocrates and Galen, but many other ancient authors and even Avicenna were still printed and studied as sources of medical knowledge and science. The final break with the ancient past, its relegation to history, belongs to the mid-nineteenth century. Even then the content of medical books could count on a lengthy period of acceptance. For instance, in 1866, Austin Flint's *A Treatise on the Principles and Practice of Medicine* was still oriented toward the Paris school and showed little regard for contemporary German achievements which, among other things, had produced cellular pathology.

It was formerly, therefore, relatively safe to entrust new scientific discoveries to books, as did Vesalius, Harvey, Auenbrugger and Jenner. Not only was the danger of concomitant discovery by others smaller; a book could also count on readers with sufficient leisure to peruse it. The feeling of urgency to acquaint the world with one's discoveries and to learn what others had discovered as quickly as possible may not have been as strong as it is today; the less developed means of communication may not have fostered the fear of missing the latest contribution; the way of life of a less industrialized society may not yet have bred the feeling that time was of the essence and the concomitant unrest that overtakes us if we are expected to follow arguments in discursive books not packed with information. Whatever the causes may have been—and they are hard to assess—the compulsion to obtain the most recent information did not manifest itself as strongly as it does today.

By Jenner's time, medical journals were already well established and had replaced the epistolary commerce by which scholars of the seventeenth century used to let their colleagues and friends know of their novel thoughts and discoveries. The frequently appearing issues of a journal brought information more quickly than a book, but journals too are now being overtaken by the torrent of scientific events, for rarely can a

[1] This essay is dedicated to my old friend, Samuel X Radbill, M.D., a lover and reader of medical classics.

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contributor count on having his article published within less than a year's time. Journals become volumes which also crowd the shelves, and their contents too become obsolete, though the continuity of a journal, and hence the frequent need to go back to an older article, delays the process of aging.

Nor has the progress of technological science that has created some of the difficulties for our libraries by-passed the libraries themselves. From places where books and journals are deposited and catalogued, libraries are turning into information centers, places where ingenious mechanical processes retrieve information, not only saving the reader's time but also making the coverage more extensive. Audio-visual devices offer information on selected topics in concentrated form; they also relieve the viewer of the need to read. There is a constant endeavor to save space by the use of micro-cards and microfilms, and the ideal goal would be reached if the volumes of books and journals could altogether be replaced by less space-consuming material. Indeed, some types of books are already facing doom (2).

This discourse on the problems of our libraries, by one so little competent for it, is intended to illustrate the intellectual situation in which we find ourselves. We need ever more information; we have to make room for it in our brains, no less than in our libraries, and we also have to rid ourselves of what is no longer valid and had best be forgotten, lest it do harm. Yet we realize that we cannot destroy all the informative books and journals without obliterating the traces of our civilization and of our own medical activities. In course of time, all books (and for simplicity's sake the term is here to include journals as well) assume some degree of historical value. From giving medical information to us they change to giving information about us. Thus they reached the heaven of the historical collection. Not all elderly books are saved, however; many of them leave the purgatory of the distant shelves only to disappear for ever in such hell as fire, pulping, or other tortures provide.

The great need for increased information, without which our economic, political, and administrative life could not function and without which science and medicine would stagnate, tends to encourage a cult of information that overlooks the fact that even knowledge needs more than information. It needs an integration of data into a comprehensible context, and what makes things comprehensible depends very much on the assumptions and rules we acknowledge when information reaches us. Information must be expressed and it must be organized, both of which can be done well or badly. Even the most purely informative book containing nothing but statistical material can be good or bad, depending on the way it handles that material (3). Moreover, the material may be correct but irrelevant, i.e., either not pertinent to the theme of the book or related to matters to which we are not willing to assign much value. Or the book is worthless because the material it contains, even if correct, is a mere rehash of earlier publications.

Obvious as these remarks may be, they remind us that every book contains something that is not just informative and that interferes with the prearranged march from young and "active" to "elderly" and then to "old." Some books are judged so worthless that they are not even admitted to the home of the elderly. (Paradoxically, they may then become valuable as rarities.) On the other extreme stand those books that are deemed "timeless," the classics, with which we are now concerned.

What is essential for making a medical book, or article, a classic? Examples

from non-medical literature are helpful in the search for an answer. For religious persons, the Bible is "the book," because it reveals divine truth, and even others will admit that it has much wisdom to impart. Wisdom is more than knowledge, or all who know much would also be wise, which unfortunately is far from being the case. Few will be insensitive to the moving power of prophetic speech, to the feeling of human grandeur and vulnerability conveyed by a Greek tragedy, or to the beauty of Shakespearian sonnets. Few will escape meeting in real life such fictitious characters as Don Quixote, Hamlet, Pickwick or Babbitt.

But long ago, Claude Bernard pointed out the difference between personal contributions in the arts and the sciences. Science, being cumulative, a discovery if confirmed is assimilated into later work, without leaving traces of its origin. Not so in the arts, where Plato's philosophy, Shakespeare's plays, and Dickens's characters do not become dissolved in the works of later authors. As Claude Bernard (4) put it: "The past keeps all its worth in the creations of art and letters; each individuality remains changeless in time and cannot be mistaken for another."

Medical classics probably would not exist if they were to be read for their substantive content only. I doubt that a modern neurologist will learn much about epilepsy from Hippocrates's *On the Sacred Disease*, that Fracastoro's *Syphilis sive De morbo gallico* has much to teach about the clinical manifestations of syphilis as seen today, or that Virchow's *Cellular Pathology* contains much that a modern textbook of pathology has missed. To be sure, *On the Sacred Disease* is the first monograph on epilepsy and *Cellular Pathology* the first work basing human pathology on the life of the cell. To be "the first" may make a book very interesting from a historical point of view, and I am the last to discourage historical interest. Nevertheless, a historically important book is not necessarily a classic.

Because medical classics, I believe, are not read primarily for the sake of their substantive content, they are not widely read altogether outside of required class work, with which I am not concerned here. How much they are read voluntarily is hard to gauge. The multitude of reprints (facsimiles, paperbacks, anthologies) points in one direction; my personal impression, I regret to say, points in another. However that may be, it will hardly be claimed that medical men are given to avid reading of medical classics. If this evaluation of the state of affairs is correct, there should be no hesitation on the part of many physicians to proclaim the reading of medical classics a waste of precious time. Yet I do not believe that such a proclamation would find a large number of subscribers. Unless the hesitation is attributed to fear of being held lacking in cultural polish, we must look for a motive strong enough to prevent disrespect. In spite of the absence of perceptible immediate usefulness, there must be a belief, or at least a suspicion, that reading such books or articles carries its reward in itself and is, perhaps, indirectly useful.

Since this is not written to promote the classics among the heathen, telling them why they have to read them, the analysis had best begin with an incontrovertible fact: There are those who derive enjoyment from such reading, and there are others who do not. The number of persons incapable of finding a single book that they would be willing to accept as a classic is probably very small. But education and reading habits may stand in the way of accepting many an established classic. There is nothing here to single out medical works from others.

The *Oedipus Rex* of Sophocles is an established classic and may have an overwhelming effect at first reading. Some readers, however, if honest, will admit with more or less diffidence that the play leaves them cold. That may be a final judgment, or it may yield to admiring enjoyment on repeated reading. Set off from average books, even from good books, classics require an attention all their own. Not all of them are necessarily well written in the literary sense of the word. The author's intent, his line of thought, his placing of values need careful scrutiny. A superficial perusal may be misleading and a bar to enjoyment. It may conceal our having brought the author down to our level of understanding, instead of working ourselves up to his. The recognized classics have stimulated a huge amount of interpretative writing—none more than the Bible—and new points are constantly discovered. Interpretation, i.e., assimilation of a work by our minds, is an act that a few master intuitively, but most of us have to acquire. In bygone days, education included a painstaking, and often painful, study of languages, especially Latin, and taught the pupil to cope with what was difficult and strange. With the decline of the thorough study of languages, dead or alive, this educational help can no longer be counted on.

There is no contradiction in the contention that enjoyment of books is often coupled with work; in music and the visual arts too full enjoyment has to be earned. Better perhaps: the work done on a classic, and crowned by understanding it, can be enjoyable.

De gustibus non est disputandum said a scholastic adage—no arguing about tastes! Only a questionnaire could supply an answer to what readers actually do enjoy in medical classics; nevertheless, a few points suggest themselves. The enjoyment may act as a mental stimulus, refreshing the intellect, increasing the eagerness to go about one's own task and overcome the obstacles in its way. Depending on the content of the book in question, the gain can be more specific. Harvey's *De motu cordis* is a model for the development of a revolutionary scientific idea of great significance, incompatible with generally accepted doctrine. It can be read with a single-minded concentration on its thesis, that the blood circulates, and on Harvey's arguments, his methods, his diction, only in as far as they prove that thesis. But such an approach bereaves us of the pleasure of meeting the Harvey who was not just the discoverer of the circulation. Harvey had his predecessors; sooner or later somebody else would have given us this discovery. Sociologists have familiarized us with the idea that discoveries usually are made independently by several persons around the same time. But that is only true as far as "the discovery" is concerned. In reading *De motu cordis* we also learn the particulars of Harvey's approach to the discovery, what it meant to him, and the mental images he associated with it. We meet a particular mind, William Harvey's, trying to be as convincing as he knew how.

Claude Bernard was not the inventor of experimental medicine, yet a similar case can be made for his *Introduction to the Study of Experimental Medicine*, which gave it a philosophical exposition unmatched for breadth, lucidity of style, and persuasiveness stemming not only from logical coherence but also from the harmony between theory and the illuminating examples from his own research. There is much to criticize in Bernard's book, to mention only the lack of appreciation of the statistical method. But rarely, if ever, will medical classics represent the last word about a subject. "That living intellect that bred them," to use Milton's words, is the main thing. To

meet that intellect is a privilege; it speaks to us and compels us to listen attentively to its every word.

As long as the reading of classics is felt to be a chore, it is a barren enterprise and had better be dropped, for it does neither the reader nor the books any good. It makes us rebellious and brings them into disrepute, heightening the barrier to a potential source of productive joy. The barrier need not be constitutional. Indifference or even hostility in early years may be dispelled by the discovery later in life of a book that strikes us as above the ordinary. We find sympathy where we thought to stand alone, we find a keenness of observation that puts us to shame, a clear grasp of ideas behind primitive techniques, or an attitude towards medical duties that we cannot but admire. Instead of a chance discovery, a rational approach can also lead to classical works. At some time in our life we realize that the basic concepts of medicine, which appeared so familiar, are more puzzling than complicated problems of molecular biology. Then we shall ask when and under what circumstances this concept was introduced and how it developed. That is the historical path. But even without tracing the steps through the past, we may interview the men who forged these concepts.

Our very familiarity with these concepts has prevented us from seeing the inherent assumptions. And so we rightly turn to authors who made the assumptions stand out, because they were not yet conventionalized. We know more about "inborn errors of metabolism" and of "chemical individuality" than Archibald Garrod could possibly have known. But the ideas were his, and this accounts for the fact that interest in his book is very great today, much greater than it was during his lifetime (5).

Whatever the occasion for a meeting with medical classics may be, the meeting becomes one between master and pupil. Not all of us have had the benefit of being taught by great medical teachers *viva voce*. The classics teach silently; they are teachers who will not answer every question, but who will help us to ask the right questions and to find the way by which we ourselves may work out the answers.

Yet reading such works is not without danger, for the light they shed may be dazzling. We may forget that in reality matters were not always as clear and unequivocal as the mind of the master makes them appear in his presentation. The logic of Henle's *On Miasms and Contagions* makes it hard to understand how his contemporaries could fail to accept the microorganismic theory of infectious diseases. Only by immersing ourselves in the literature of the day do we realize how confusing the situation was.

Another, though minor, danger threatens even those who do not turn to the classics for historical understanding. Classics have to be read carefully, because we expect their authors to have used their words carefully. Such reading, however, should not lead to contempt of what may be ephemeral yet important for doing "what lies clearly at hand." The words are Carlyle's, they are cited by Osler (6) and I quote them to obviate the misunderstanding that there is bound to be antagonism between works of information and classics.

This is reminiscent of Osler's advice to a budding medical man (7): "Let the old men read new books; you read the journals and the old books." Among the old books, Osler here specifically included the ancient Greeks, Sydenham, and Laennec, many, if not all, of whom would be considered classics. His subsequent remark, "as a teacher you can never get *orientiert* without a knowledge of the Fathers, ancient and modern," indicates that the young man was a

teacher, present or prospective. Altogether, it would seem that when speaking about the reading of medical classics, Osler exercised his role of medical educator. His activity in the United States belonged to the early period of medical reform; it ended about five years before the Flexner Report was issued, and when the Johns Hopkins School of Medicine was still a new venture, barely twelve years old. The fight for better preparation of prospective medical students, for the academic character of medical schools, for a thorough scientific training of the physician and for his unremitting contact with scientific progress, formed the background of much of Osler's thought about "Books and Men," if we may use the title of this essay as denoting the theme dominant or touched upon in many others. Osler was pressing for good medical libraries and for good reading habits, in which he wisely included non-medical works.

Many of Osler's desiderata have been fulfilled, though not always quite as he had envisaged them. The humanistic side of the education of physicians has not kept pace with their scientific training; on the other hand, medicine has moved closer to public health and to the social sciences. But the provision of good medical libraries is as little a matter of debate today as is the provision of good laboratories. If, in Osler's days, not enough important medical literature was housed, the question now is one of providing proper housing for the medical literature that is pouring out like a torrent.

With this question we are back where we started, only that our specific problem now is: Where do medical classics stand in this changed world? Do they belong with the active, informative books, or do they belong in the historical collection? Or should Osler's wish (8) be heeded that there be "in each library a select company of the immortals set apart for special adoration"? It would be simple to send all classics to the historical collection—if classics only had to be old and clearly separable from current life. And a chapel dedicated to the immortals could combine the practical with the decorative—if only the selection of the immortals were a matter of easy agreement.

As long as potential readers can find the books, their physical placement is a matter that concerns the librarian more than us, who ask whether classics have to be old and how a decision can be reached whether a book is immortal.

Books that have been read for many generations are said to have passed the test of time, a test which is unreliable for classics. One of the collections of Osler's essays from which I quoted carries the subtitle, "and Other Papers That Have Stood the Test of Time." Indeed, many of the essays are still read in Anglo-Saxon countries; I wonder how well they are known in other parts, even of our own Western civilization. Classics are bound to their respective civilizations. And there are essays by Osler that did not appeal to my students, required to read them. Indeed, I must admit that "A Way of Life," breathing, as it does, the optimistic spirit of 1913, does not easily fit into our benighted world. Characteristic as it may be for Osler's view of life, its prescriptions may be unconvincing and its prescriptive style sound harsh to young ears today (9).

Osler too was time-bound, and reading him and holding him up as an ideal should not become a substitute for emulating him. Where the humanities are concerned, it seems to me that what Galen said of Hippocrates could also be said of Osler: Most physicians admire him but do nothing to emulate him (10). Emulating Osler means actually reading books (beside the informative ones) and forming one's own judgment about them, even at the peril of disagreement with the master.

My argument is not directed against the established classics as such, and the value of lists of "great books" for the schoolroom need not be denied, particularly if there is a competent teacher to select, to advise and to comment. But there is a difference between books that should be read because our civilization has been formed by them and the advocacy of reading classics for their intrinsic value.

It is customary to refer to all ancient Greek and Roman authors as "classical," and in the historical sense this appellation is justifiable. But their intrinsic value may not warrant it. Galen's *Ars medica*, the *Microtegni* of the Middle Ages, is a great medical book that helped to form the outlook of medical men for hundreds of years; nevertheless, I would hesitate to offer it to a physician as a classic. One generation may well need a vacation from such classics as another may restore; "timelessness" and "immortality" should not be interpreted so rigidly as to deaden response and bar newcomers.

The opposite extreme to mere traditionalism is the devaluation of all classics by the cheapening of the very word. It is good that reprints, paper backs, and anthologies put so many books within easy reach, thereby purging them of possible snob value. But the cheapening that derives from promiscuously naming all kinds of books "classics" is not good. It weakens our sensibility and creates disrespect for greatness. It is in line with the carelessness that calls any theoretical thought "philosophy," and misnames any knowledge "wisdom." As a result of such leveling we have no words left for real philosophy, real wisdom, and real classics—all of which are rare. Where everything is made to look like gold, real gold will not look different from anything else.

If the test of time cannot be relied on and everyday parlance is treacherous, on what shall we rely? On ourselves, I would suggest. If, upon reading a book (or an article) carefully and thoughtfully, having assured ourselves that enthusiasm has not made us read into it more than it demonstrably contains, nor left out parts because we cannot understand them, if then we judge the work to be exemplary of its kind, to set a standard, we shall have judged it a classic. Exemplary can refer to presentation, novelty of experience or interpretation, breadth of concept, coherence and consistency of thought, fullness and keenness of observation, ingenuity in experimentation, nobility of deed, or any other value that makes this work stand out even among good ones and tells us: This is the way to think, to write, or to act.

We shall have judged it a classic because, for us, individually, it has fulfilled the demands that can be made of a classic. If the book already stands in the alcove of the immortals, we shall have confirmed the judgment of those before us. In the case of elderly books or of active ones, others will or will not share our judgment, and the book will or will not gain the general approval we think it deserves. Official classification is the concern of educators, literary critics, bibliographers, and librarians. Classification becomes meaningless if classics are not read and either reconfirmed or suspended. And their being read depends on our capability, active or potential, to recognize their worth.

Two serious objections may be raised. To base the reading of classics on subjective experience makes greatness relative, and only the absolute, it may be said, is binding. There is, perhaps, no better reply to this objection than the following words of Jacob Burckhardt, the author of *The Civilization of the Renaissance* (11):

> We take our departure from our dwarfishness, our confusion, and distraction. Greatness is

> what *we* are *not*. To the beetle in the grass, being nothing but a beetle, even a hazel-bush (provided it takes any notice of it) may already loom very large. And yet we feel that the concept [of greatness] is indispensable and that we must not allow it to be taken away from us. Only it will remain relative; we cannot hope to reach an absolute concept.

Eschewing a systematic discussion and admitting all kinds of dangers, Burckhardt insisted that the feeling for greatness, though relative, is yet inescapable. Thereby he saved this concept from being lost in a discursive debate over its essence. This seems important in our time, when greatness is often attributed unreflectingly, sometimes even irrationally, or its existence denied altogether because it does not easily fit into a statistical world of quantities.

The second objection questions whether upholding the standard of the classics is not tantamount to perfectionism. Will it not induce us to hide our own light under a bushel? I agree that perfectionism is sterile when it becomes an excuse for never finishing a piece of work. But to quote a "classical" author, Propertius (12): *in magnis et voluisse sat est*, "in mighty enterprises it is enough even to have willed success." There is nothing wrong with trying to do one's best, and our libraries amply prove that our times do not suffer from a surplus of bushels.

Like all classics, medical classics too lead a pitiful existence if, like gods on Olympus, they are separated from us. In libraries they must not be shelved out of sight, even though their choice may demand a constant exchange of opinion within the medical community. For us as individuals they must be like the Roman *lares* and *penates*, gods of the household.

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A Curator's Story of the Mütter Museum and College Collections

By ELLA N. WADE

PREFACE

This book was written at the request of Francis C. Wood, M.D., president of The College of Physicians of Philadelphia from 1966 to 1969, as a permanent record of the most important items in the Mütter Museum and College Collections and a source of information for those interested.

Much of the material has appeared in articles by Dr. Joseph McFarland, a former curator, and by myself, which were published in the Transactions & Studies of The College of Physicians of Philadelphia *and in* Philadelphia Medicine. *It was Dr. McFarland who approved my first venture in writing and encouraged me to continue. It was he also who acquainted me with the duties of the curator, one of which was handling and cleaning each individual specimen. It was in this way that I became familiar with the many specimens and their histories and was able later to write about them.*

I am indebted to the various members of the Mütter Museum Committees under whom I served for thirty-one years, for their patience, consideration and helpfulness, and also to many Fellows of the College and other physicians, and to Mr. W. B. McDaniel, 2d, Curator of the Library Historical Collection, for friendly advice. Time has passed quickly, and the thirty-one years are long only when measured by the growth of the College and by a few aches in the bones of the curator.

This book contains a wealth of material concerning objects that may not be found in any other museum, and it has been a pleasure to write it.

Ella N. Wade, *The Mütter Museum and College Collections*
Clerk, 1939–42, and Curator, 1943–70

THE MUSEUM IS BEGUN

The College of Physicians of Philadelphia, at 19 South 22nd Street, is passed daily by hundreds of people who are unaware of the many treasures inside. The building, dedicated in 1908, is the sixth home of the College, which was founded in 1787 by a group of distinguished physicians, not as a teaching organization but as a scientific body dedicated to the advancement of the science of medicine (1). The building houses meeting rooms, study rooms, a medical library and a pathological museum, and while there is much to be said about the fine library and the many activities of the College, it is about the museum that this book is written.

In 1849, sixty-two years after the founding of the College, Dr. Isaac Parrish presented a resolution to "found a museum of pathological anatomy under the direction

and control of the College." Its purpose was to promote science and secure valuable material for study that might otherwise be lost. The resolution was adopted, a committee and curator appointed, and the name "Museum of Pathological Anatomy" given. It grew rapidly until 1852 when it suffered a period of inactivity. This may have been due to the death of Dr. Parrish, who seems to have been the moving spirit in the venture.

In 1856, Dr. S. Weir Mitchell informed the College that Dr. Thomas Dent Mütter had expressed a desire to donate his entire private museum to the College.

To appreciate the extent of this museum one must know something of Dr. Mütter, who died at the early age of forty-eight (2). He was born in Virginia in 1811 of Scottish and German ancestors and was an orphan at the age of eight. Under the guardianship of Robert Carter, a relative of his mother, he attended Hampden-Sydney College and later studied medicine at the University of Pennsylvania, from which he was graduated in 1831. As Paris was then the medical center of the world, to regain failing health and also take advantage of the teachings of such men as Larrey, Marjolin, Ricord and Sappey, he went abroad. On his return from Paris he taught surgery for a time at the Philadelphia Institute, a summer school, under Dr. Thomas Harris, where his reputation was established as a lecturer and surgeon. In 1841 he was made professor of surgery at the Jefferson Medical College, where, together with Drs. Joseph Pancoast, Charles D. Meigs, John K. Mitchell, Robert M. Huston, Robley Dunglison and Franklin Bache, he served for fifteen years. While Dr. Mütter contributed little to literature and was not the best surgeon, his engaging personality and the enthusiasm and interest with which he imbued his lectures made him a favorite of students and faculty alike. He made careful preparations for all operations, anticipating difficulties that might be encountered, and no professional jealousy prevented him from soliciting the aid of Dr. Pancoast, a more skillful surgeon. He specialized in reparative surgery learned in France, operating for club foot and harelip, and in plastic work to correct deformities caused by burns and injuries. His ambidexterity served well in long and tedious operations on the face where no anesthetic was used.

In offering his museum to the College, Dr. Mütter told Dr. Mitchell that because of ill health he was resigning his position and wished to find a permanent home for his collection. The gift consisted of about two thousand specimens and thirty thousand dollars to be used for the services of a curator, for an honorarium for a yearly lecturer and for enlarging and maintaining the museum. One condition was that the College provide a fireproof building for it. Meetings were held to consider the matter, but much to Dr. Mütter's disappointment no conclusion was reached at that time due, in part, to the fact that although a building fund had been started in 1849, sufficient funds were not available to build a fireproof building. Dr. Mütter expressed himself as too ill and too busy to consider the matter further and negotiations were abandoned until 1859. Dr. Mütter then advised Dr. George B. Wood that he was ready to go through with the original plans. A new committee was formed, the agreement was signed and the new building at 13th and Locust Streets was begun. Dr. Mütter died in 1859 and did not see his specimens moved into the new building completed in 1863. Cases and jars, of course, were needed to accommodate many of the specimens. We find from 1866 to 1900 that huge sums were spent for these and also for lumber, carpenter work, bricklaying, painting and plumbing, all necessary to assemble the new museum (3).

Now that the essential work was com-

pleted, the Mütter Museum Committee, as the minutes show, proceeded to spend Dr. Mütter's money like sailors on shore leave. It seems that every time a Fellow of the College contemplated a European trip, which occurred frequently, funds were put at his disposal for the purchase of any worthwhile museum material that he saw while there, or for collections that he had heard were available. Besides, he was reimbursed for any expense incurred by him in this connection. Thousands of dollars were spent in the European markets for the best museum material, and we must admit that the selections were good ones and today are some of our most prized possessions.

Here, however, we come across a mystery. We cannot determine what has happened to many specimens for which large sums were spent but that now cannot be located. For instance, in 1867, the curator, according to the museum minutes, was ordered to pay Mr. Le'dion $998 for models of pathology, which he did, but they cannot be located. Models of melanosis costing almost $100 also cannot be found. These are but two examples of missing specimens. What became of them? Were they perhaps damaged in moving to the present building, or were they lost in transit? There seems no probability that we will ever know the answer. Another strange thing is that they do not appear in the catalogue written in 1884 by Dr. Guy Hinsdale, a former curator. Today we are more or less dependent upon donated gifts which unfortunately are mostly old instruments that we cannot accept because of duplication.

HUMAN SKULLS

Because of the large number and variety of specimens in the museum, it is hard to know just where to start to tell about them. Perhaps, since the first thing that meets the eye as one enters the museum is a case full of human skulls, that should be a good beginning.

In 1874, Dr. Joseph Hyrtl of Vienna offered for sale, among other things, his collection of 139 human skulls (4a) from twenty-two different countries. Each one of these bears the name of the person, his place of birth, his age, religion, occupation and cause of death. Reading the labels, one is apt to conclude that the majority of the persons represented were criminals and met with violent deaths. This is not quite true. There are actually fifteen legitimate occupations listed, indicating that most of the people were honest and hard-working. Those who did live outside of the law received their just deserts, for fifteen were executed for murders that they committed and eight died of gunshot wounds. The ages range from eight years, that of an Armenian maiden, to eighty, the age at death of a Romanian herdsman who had attempted suicide by cutting his throat in his seventieth year. The majority, however, are in the age group from fifteen to thirty. Among seventeen suicides, it is interesting to note that while youths thirteen to nineteen ended their lives because of unhappy love affairs and discovered thefts, the older persons committed suicide because of extreme poverty or fits of depression. Seventeen different diseases claimed the lives of forty-nine, with typhus, complications from fractures, and tuberculosis being most common. Except for a Viennese prostitute, an eighteen-year-old girl who was executed for murder, and a Dutch woman who for some unknown reason committed suicide, the persons represented by the thirteen female skulls all seem to have been as respectable as the majority of the males.

Professor Hyrtl was born in Eisenstadt, Hungary, in 1811. He studied in Vienna, where at the age of twenty he attained the position of *preparatore*. In 1837, he became professor of anatomy at the University of Prague, returning in 1843 to Vienna as professor of anatomy at the University. He

was a popular lecturer, excellent teacher and technician, especially skillful in the art of preparing anatomical specimens. This will be recognized in other material that we received from him.

Dr. Thomas Hewson Bache was the curator of the museum from 1865 to 1884 and in this capacity it was his privilege to meet and know Professor Hyrtl. The museum has letters written by him to Dr. Bache from 1866 to 1874. Professor Hyrtl resigned his chair in 1874, by his own admission to escape the humiliating experience of being pensioned at seventy and in anticipation of this wrote his first letter to Dr. Bache in 1866 acquainting him with the collection he wished to sell. The skull collection is but one of several valuable exhibits purchased from him.

Occupying space in the case with the Hyrtl skulls are parts of *Indian skulls* from burial mounds in Illinois, Missouri, and Wisconsin. These were given to the museum by Dr. S. Weir Mitchell, who received them from Dr. George J. Engelmann, who had discovered them with Dr. Adolph Wislizenus. Most of them were found in French Village, eight miles from St. Louis, and were in boxes or chests, some of which were lined with flat pieces of limestone. The single graves were invariably on small spurs located on the bluff facing St. Louis. Others are from the Big Mound in St. Louis which now is completely levelled. While the skulls in French Village were buried only two or three feet below the surface, those in St. Louis were found much deeper. Unfortunately, none of the skulls is complete. The mandible is missing in most cases, in many only the calvarium remains, and the general crumbling condition of the bones gives evidence of their long interment. Sufficient remains, however, to display the flattened occiput, and in some cases the flattened frontal bone, produced by the Indian practice of strapping the papoose to a board so that it could be carried easily. This deformity was not thought to make any material difference in the cubical capacity of the skull or to alter the intellectual capacity.

Primitive Peruvian trephining (5) is illustrated in another skull collection. These skulls are replicas of the originals belonging to Señor Manuel Muñiz, Surgeon General of the Peruvian Army, who exhibited them at the World Congress of Anthropology held in connection with the Columbian Exposition in Chicago in 1893. While the collection was in the custody of the Bureau of American Ethnology, several sets of casts were made by Dr. Lancey W. Gill, ethnologist in charge, and through Dr. Guy Hinsdale this set was purchased for the museum in 1894.

In the earliest of the three types of operations represented, a pointed bit of stone or arrowhead was used to make four linear incisions, allowing for the removal of a rectangle of bone. A pointed stone held vertically was used also in the second type, but after the inner table was reached, the cutting was directed forward and an elliptical button of bone was removed. The third type of operation was performed by scraping away the bone with a stone instrument, removing the outer table and reducing the inner table to a feather edge. Reparative growth in several instances indicates survival from the operation. It has been concluded that several operations were performed to relieve cases of depressed fracture such as might have been caused by a slingshot or spiked club, weapons known to have been used by the ancient Peruvians. It has also been suggested that some of this trephining was done to liberate the devil that was supposed to be causing the pain.

One cold dreary day in November 1950 a young soldier, home from a stint in the army, entered the museum with a tidy box tucked under his arm. He approached the curator's desk hesitantly and thereon deposited the package. "Look," he said, "I don't know if you want this thing or not, but I know I don't, and what's more, I

honestly don't know why I bought it. Besides, my mother doesn't want it around the house any longer, and it isn't something you can put out for the trash collector." Whereupon he lifted the lid of the box and brought out *a decorated human skull!* It had been artificially elongated and features had been modelled in clay over the bones of the face. Starting at the bridge of the nose and extending diagonally downward on the cheeks, two patches of black paint had been applied. Dots of white paint bordered the inner edges of these patches at regular intervals.

Mr. Walter Bonsall, the donor, did not get the history of the skull when he purchased it from a Samoan while stationed on the island of Mallicollo, in the New Hebrides group, so we secured the aid of Dr. Ward Goodenough of the Department of Anthropology at the University of Pennsylvania to learn what primitive rites it exemplified. He told us that the people of this island erected effigies of distinguished persons who later became distinguished ancestors. Life-size statues were made in sitting positions, and the skull of the person, after it had been processed, formed the head of the statue, and in time it became associated with mythological characters in a sort of ancestor worship. The decorations, he thought, might represent tribal tattooing.

Anyway, the museum now has the skull, and Mr. Bonsall and his mother are no longer bothered by it!

It frequently happens that the text of a label on a specimen must be changed to add newly acquired information or to correct an error. In one instance, the museum was obliged to change a label for a different reason. The specimen was *a fake!* In 1933, the College had received the cast of three skull sections, two pieces of mandible and a tooth, purported to be portions of the skeleton of Piltdown Man, one of the earliest of human remains, from 750,000 to 950,000 years of age. The originals were discovered in 1912, in the gravel pits near Piltdown, Sussex, England, by a lawyer and amateur anthropologist, Charles Dawson, and were accepted as authentic by many. When the College received the casts, they were proudly put on permanent display with other ancient human remains.

Recently, however, these were proved to be only 50,000 years old, which, according to accounts, is not extraordinary, as many human bones of this age are often found throughout Europe.

The fake was uncovered by Dr. K. P. Oakley of the British Museum and Professors W. LeGros Clark and J. S. Weiner of Oxford, who claim that the bones were artificially colored to give the appearance of age and that the teeth in the jaw (really the jawbone of an ape) and the single tooth had been filed down to human proportions. Also, it seems that bones accumulate a large amount of fluorine when in the earth for a long time, and analysis by these three men showed that there was not enough fluorine in these specimens to make them their purported age.

Experts do not seem to question Charles Dawson's integrity but believe that the hoax was the work of some professional prehistorian with more technical knowledge than Mr. Dawson, who was as much a victim of the deception as other anthropologists who accepted the age of these bones without suspicion. And so, although the museum can no longer claim to have casts of Piltdown Man, the specimens are still on display with an amended label, for bones 50,000 years old are not seen every day.

Several years ago an extensive study of the *syphilitic skulls* in the Mütter Museum collection was made by Dr. R. C. Holcomb, retired captain of the United States Navy Medical Corps, who spent many hours over a period of months studying each specimen, and when he finished he had two large note books filled with his findings. He advised us that in a census of

syphilitic skulls that he had compiled, our museum with ten skulls and five calvaria ranked third, only being outnumbered by the National Museum and the Army Medical Museum at Washington, they having twenty-one and twenty respectively.

The majority of the skulls and calvaria, most of which were in the original collection of Dr. Thomas D. Mütter, show extensive involvement. One shows syphilitic caries of the entire vault, involving every bone in the cranium. Both the internal and external surfaces of the left temporal bone are invaded and the petrous portion so far destroyed as to have probably affected the hearing. Another specimen shows syphilitic necrosis of the face. The ethmoid vomer, nasal, lacrimal and palate bones are entirely destroyed and the central part of the maxilla and the body of the sphenoid are also involved. While in some skulls only the outer table shows excavations, in one in the museum collection, at the crown, both tables are destroyed, leaving large openings in the skull.

Besides the skulls, many long bones show lesions of this disease, all of which are of special interest, for with the great strides that medicine has made since the nineteenth century it would be hard to duplicate them today.

SKELETONS

The museum collection includes a variety of skeletons. Many show various deformities, but outstanding among them is that of a young man from Kentucky (4b). He apparently attained a height of 7 feet, 6 inches, and would have been taller had there not been a lateral curvature of the spine. Dr. Joseph McFarland, a former curator, in 1938 wrote an interesting article on this skeleton, also relating his findings in his studies of other giants. He mentions a lengthy and detailed account of our giant which appears in the Boylston Prize Essay for 1898 upon acromegaly, written by Guy Hinsdale, M.D., also a former curator, in which this paragraph appears: "In the year 1877, Professor Joseph Leidy was informed by Professor A. E. Foote that the body of a giant was offered for sale, providing no questions were asked which might lead to its identification. Arrangements were soon made by Dr. William Hunt, chairman of the Mütter Museum Committee, through the gentleman mentioned above, and the body was transferred to Philadelphia where the skeleton was prepared and mounted by Mr. R. H. Nash." This transaction cost the museum fifty dollars.

Dr. McFarland found in his extensive study that there were many giants around the world, most of them of greater height than the skeleton in the museum, but he said, "The Mütter American Giant undoubtedly is a person of importance in the world of giants, but it is a distinction accompanied by many drawbacks, for a cursory examination of the bones, slender, curved, fragile, with ununited epiphyses, and a glance at the pigeon breast and crooked back, are sufficient to show that feebleness and infirmity must have attended him during the 'height of his glory.' "

A very pleasant incident occurred (4c) in connection with our giant skeleton. One of our most unusual and enjoyable visitors was a little old lady who in her girlhood had been a snake charmer in a Wild West Circus. The world had not treated her kindly, but a sweet and sunny disposition still survived. Her name was Jennie and she was well past sixty. Her clothing was shabby but neat, and her rather disreputable hat was perched on her head at a jaunty angle. Her first visit was on a bitter cold day in February and she had lost one of her gloves. Her unprotected hand was so cold that she had difficulty in extricating it from the front of her threadbare coat where she had tried to keep it warm. She must have been somewhat awed by the College, for she began by apologizing for coming in. I assured her that visitors were welcome

and offered to show her around, but she said she came expressly to see the Mütter Giant. I showed her the skeleton and she said, "Oh, no, that is not Pickett." Then she told me this story. A friend of hers, a Mrs. Nelson of Indian Neck, Virginia, had seen an article about our skeleton in a southern paper and suspected that it might be that of an uncle, a Colonel Pickett Nelson, who exhibited himself as a giant in Pony Bill's Wild West Show about 1890, where Jennie also performed as a snake charmer. He had been taken ill and had died while on tour, and his body had been sent home for burial. Years later, however, it was learned that the grave had subsequently been robbed and the skeleton turned over to persons unknown. Mrs. Nelson had written to Jennie asking her to inspect our giant, since she, Jennie, lived in Philadelphia and not very far from the College. However, Jennie stated that the Mütter Giant could not be that of Nelson because of the spinal curvature which Nelson did not have. She brought us photographs of Colonel Pickett Nelson taken in the elaborate uniform he wore while in the show and told us that he was part Negro, but we learned from Dr. Charles Humberd, of Barnard, Missouri, who sent us a great deal of information about him, that he was a Rappahannock Indian.

I was surprised at the interest Jennie displayed in other specimens and her familiarity with names of doctors of that period, but these were explained when she told me that she had posed for anatomical drawings and photographs for many of these doctors and professors whom she had come to know very well. She came back several times at our invitation to answer questions that arose, but our last request remained unanswered, and we learned on sending a messenger to her home that she had died suddenly on an April day in 1941 while on her way home from an art class where she had been posing as a peasant. Visitors come and visitors go, and often if they return a second time it is difficult to recall whether they have been here previously. Distinguished guests are here so briefly that they remain only a name in my memory, but I shall always remember Jennie, a charming visitor, who at the age of sixty-nine, although in straitened circumstances, lived fully in the enjoyment of pleasant memories of an interesting past while waiting patiently and hopefully for a brighter future.

Human interest stories, such as this, frequently creep into the museum, which makes it anything but a dull place, a description, we are sorry to say, that is sometimes applied to museums such as ours.

Acromegaly combined with giantism is represented in the plaster cast of the right hand and foot and left fist of Thomas Kane. He was born in Brooklyn on July 24, 1844, and died suddenly in Rochester, New York, in 1903. At birth he weighed 17 or 18 pounds, and when the casts were made he weighed 253 pounds and was 6 feet, 3 inches tall. As a boy he had the largest feet and hands in the neighborhood, and his shoes, size 16, were made for him by his brother, a shoemaker. However, had the breadth and thickness of his feet been proportionate to their length, 11½ inches long, size 10 would have been large enough. He was a machinist and engineer, ignorant of the cause of the abnormal growth, and attributed the width of his hands to heavy lifting in the foundry where he worked. Hypertrophy was not confined to the extremities but had invaded the bones and soft tissue of his forearms and legs. Little is known of his general health, but records show that he had been treated in Arkansas and Idaho for some form of rheumatism.

The skeleton of a seven-year-old child who suffered from *hydrocephalus*, came to us through Dr. Richard H. Harte who was interested in the case. The child's head had increased in size until its circumference measured 27.75 inches. The thin mem-

brane covering the normal opening in the right frontal region of the skull was expanded during life to form a prominence on the skull. Dr. Harte, anxious to get this unusual specimen for the museum, bought the dead body of the boy and this receipt appears in the museum files:

April 8, 1882

$20.00

We the undersigned do for the sum of $20.00 just received from Dr. Richard H. Harte relinquish all claims hereafter to this dead body of Thomas Jeff aet 7 years who died April 2, 1882 of hydrocephalus.

Thomas Jeff

Leatta Jeff

Another interesting case of hydrocephalus is the model of the head of twenty-nine-year-old James Cardinal, born in Sussex, England, in 1793. He was admitted to Guy's Hospital in 1824 in care of Sir Astley Cooper, having been dismissed previously from St. Thomas' Hospital because no medical or surgical aid could be given to him.

It was learned that his head had always been unnaturally large and at birth seemed to be almost devoid of bone, having a pulpy feeling. It increased in size two weeks after birth, and after a month bone formed. Not until he was six years old could he walk unassisted, and then only on a level surface, and he fell down if he attempted to run or stoop. He learned to read and write but only with difficulty, because of myopia, for this made it necessary for him to stoop in order to see, and the bending produced severe pains in his head. The account states that on a bright sunny day if the sun was behind his head or if a candle was held behind it, it seemed almost semi-transparent. After death it was disclosed that the entire upper part of the skull was filled with a clear transparent fluid, contained within the dura mater, the pressure of which had flattened the hemispheres of the brain and pushed it to the base of the skull. When everything, both solid and liquid, was removed from the calvarium, its capacity was ten pints of fluid.

The length of time the boy lived, the degree of intelligence, and his general good health over a period of twenty-nine years makes the case remarkable. However, this may have been due to the fact that the ventricles of the brain were only moderately distended by fluid, and although displaced and altered in shape, the mass of cerebral matter was scarcely diminished.

The skeleton of a rachitic woman (6), *an achondroplastic dwarf*, upon whom Cesarean section was performed, was exhibited at a meeting of the Obstetrical Society of Philadelphia on May 1, 1879, by Dr. Washington Baker for Dr. Walsh of Camden, New Jersey, after which it was donated to the Mütter Museum by the Obstetrical Society. At the meeting a letter was read from Dr. Maurice Fitzgibbon of Norfolk, Virginia, who acquired the bodies of the mother and child from the Norfolk doctor in charge of the case. In it he tells of preparing the skeleton and measuring the pelvis. The skeleton is 3 feet, 6 inches tall and is curiously deformed. The pelvis is so situated that it looks forward instead of upward, and the sacrum cannot be seen from the front at all, but is straight rather than curved and goes backward almost at right angles with the lumbar vertebra. The head is very large compared to the body. In 1856, when delivery could not be accomplished normally because of the size of the child's head and the deformity of the pelvis, craniotomy was tried but had to be abandoned and finally the Cesarean section was performed. The skeleton is exhibited holding the skull of her child.

We regret that so many of our specimens have no history connected with them. However, a thickened calvarium that was donated to the museum by Dr. Charles Herwirsch of Philadelphia in 1896 was accompanied by the case history. It repre-

sents a case of *Paget's disease* (7), or osteitis deformans. The specimen is from a white woman, normal in every respect and in good health, until at the age of 64 she suffered an attack of rheumatism. It was during the year that she was confined to her bed with this attack that her head began to grow larger. For a time she was able to walk a little with the aid of a cane, but eventually she was unable to do this without assistance, or to help herself in any way. Also, her normally even disposition changed. She easily lost her temper, became restless and impatient, refused to eat and spoke briefly only when spoken to. She died at the age of seventy-one. The head measures 70 cm. in frontal-occipital circumference, and the calvarium weighed 4 pounds, 2 ounces. The bone is soft and can easily be pulverized or crumbled.

At the time this specimen was presented there were only two other specimens known to equal this one in size, one in the Warren Museum at Harvard University and the other in the Army Medical Museum in Washington, D.C.

FAMOUS OPERATIONS

The stories of two famous operations and the famous doctors concerned in them are kept alive by two specimens in the museum. One is the tumor removed from *President Grover Cleveland's jaw* in 1893 (8), and the other is the collection of calculi removed from the bladder of Chief Justice John Marshall in 1831.

Eighteen ninety-three was a critical year in American history. The repeal of the Sherman Act, a clause of which allowed the free coinage of silver, was imperative. Because of the financial crisis, it was necessary that no hint of a serious operation on the chief executive become known. The vice president, Mr. Stevenson, was a "silver man," and had he become president it is unlikely that the repeal of the Act would have been accomplished. Arrangements were made for the operation to be done secretly on Commodore E. C. Benedict's yacht. Dr. Joseph D. Bryant of New York, in charge of the case, Dr. William W. Keen and Dr. John Erdmann, who assisted, and President Cleveland, with others who participated, boarded the yacht on the evening of June 30. The operation was performed on the first of July as the boat proceeded up the East River.

The entire upper jaw, from the first bicuspid to beyond the last molar and nearly to the middle line, and parts of the soft palate were removed. A second operation on July 17 to remove suspicious tissue was also undertaken on the yacht with the same secrecy. Because of the use of a cheek retractor bought in Paris by Dr. Keen in 1866 (also a museum exhibit), no external incision was necessary, so that when the dentist, Dr. Kasson C. Gibson of New York, fitted Mr. Cleveland with an artificial jaw of vulcanized rubber and a dental plate, there was no outward change in his appearance and his speech was normal. When he attended the special session of Congress called for August 17, President Cleveland was able to secure the passage of the Repeal Bill, thus averting a national disaster. No one was aware that an operation had taken place.

The growth was diagnosed as a sarcoma at the time of the operation and this was later confirmed by Dr. William H. Welch of Johns Hopkins. Many times since, however, this diagnosis has been questioned, but the museum committee and officers of the College have, as yet, not permitted a section to be taken of the specimen.

The operation on Chief Justice Marshall is noteworthy because of the fame of the surgeon and the advanced age of the patient. Dr. Philip Syng Physick, "Father of American Surgery," received his initial medical training in Philadelphia under Adam Kuhn. He also attended lectures at the University of Pennsylvania, but was

not graduated from there, desiring to complete his medical training in Europe. In London he studied under John Hunter, then returned to Philadelphia to practice. His surgical reputation was established, it was said, as much by his skill in operating for cataract and for stones in the bladder as by anything else that he did. He was reluctant to undertake the lithotomy on Chief Justice Marshall because for several years he had declined to perform any extensive surgical operation, and he offered the case to his good friend, Dr. Jacob Randolph. Dr. Randolph, however, persuaded Dr. Physick to do it, and it proved to be the last operation of this kind that he performed. He removed one thousand calculi from the bladder of the Chief Justice. We are sorry to say that there are fewer than that in the jar now in the museum.

In his memoir of Dr. Physick, Dr. Randolph attributed at least part of the success of the operation to the calmness and self-possession of the patient, who, nearing the end of a long life, reasonably decided to take the many chances an operation presented rather than to continue to suffer the pain he had had to endure. Dr. Randolph, visiting him on the morning of the operation to prepare him for it, was surprised to find him eating a hearty breakfast, which he said he was thoroughly enjoying because it might be his last. Then, asking Dr. Randolph's permission, he calmly took a nap from which he had to be aroused at the scheduled time. Mr. Marshall lived several years after the operation, had no recurrence and finally succumbed to a liver ailment.

CALCULI

In the museum there are over two hundred small bell jars containing calculi, classified variously as biliary, renal, hepatic, intestinal, salivary, urinary, uterine and vesical. The principal portion of the collection was derived from the bequest of Dr. Mütter when his museum was acquired in 1863. Others were donated through the years by Fellows of the College, one being a large urethral calculus presented in 1952 by Drs. Leon Solis-Cohen and Paul S. Friedman. The most recent calculi received came to the museum from Dr. George N. J. Sommer of Trenton, New Jersey, representing his fifty-five years of urological surgery. They were all shapes and sizes, stored in vials, jars and boxes. As we did not have room to display them individually, it was suggested that they all be emptied into one large receptacle and this proved very effective.

In the Minute book of the Mütter Museum for 1867, it is noted that a motion was made to pay Dr. Robert Bridges the sum of $300 for his services in analyzing the original museum collection of calculi. This must have been a tremendous task, for he has marked every specimen to designate its chemical character and the order of succession of the different layers, and classified them according to the apparent predominance of any one ingredient. The collection is not entirely intact, for the museum storeroom contained a great many of the bell jars with their original museum numbers but without the calculi. It is probable that many of the corks came loose in moving them from one place to another, and the contents lost. Although the exhibit itself is not eye-catching, a close inspection of the different layers can be quite interesting.

BONES

For many years arthritic bones and ankylosed specimens were used in connection with lectures given at The College of Physicians to graduate students of medicine, who found actual specimens of lesions much more instructive than descriptions or illustrations of diseases. Many of these speak for themselves for there are vertebral columns in which the majority of the vertebrae are solidly grown together, and ankles, knees and elbows which are firmly ankylosed.

One particular specimen consists of adjacent ends of a humerus, radius and ulna showing ankylosis of the elbow following *traumatic arthritis*. The humerus and ulna are co-ossified. The lower end of the humerus is thickened and its surface rough. The olecranon is massive and there is rough irregular bone at the most prominent portion of the elbow. The bones are from a very unlucky fifty-year-old coal miner from Pennsylvania who in 1876 was struck on the elbow by coal from a blast. Ankylosis followed and the olecranon was exposed on a level with the skin for about one square centimeter. Six months later inflammation developed followed by abscess. In 1875 the same arm had been squeezed between a coal wagon and a heavy timber. Inflammation followed from the elbow down, with swelling and abscess. When he entered the hospital ten months later there seemed to be no dead bone, slight power of pronation existed, but no flexion. After unsuccessful efforts to save his limb, it had to be amputated. The remainder of the forearm and hand is preserved in the museum, exhibiting diffuse cellulitis.

In 1870, four distinguished Philadelphia physicians, Drs. J. Ewing Mears, William W. Keen, Harrison Allen and William Pepper, reported their findings in an interesting case of *universal hyperostosis* (9) *associated with osteoporosis*. Although the Mütter Museum possesses only a few of the bones of this particular skeleton, they are sufficient to show the extent of the disease. After a thorough search of other writings and collections, the committee stated that they "nowhere found specimens of this disease or description of such, at all equal in extent and severity" to those in this particular case, for every bone in the body was involved. Three different processes are represented in different parts of the skeleton, and in some instances in single bones. They show osteoporosis of the original osseous tissue, external hyperostosis due to successive attacks of periostitis, both of which are present in all of the bones, and secondary induration.

The patient was a fourteen-year-old English farm boy who came to this country with his parents at an early age. While working on the farm in September, 1866, he noticed his face beginning to swell and it felt puckered and wrinkled when he stooped. He had difficulty regaining the erect position and in so doing experienced severe pains along the spinal column. Later his forearm became swollen. Treatments he received benefited him, and he was able to resume work in March, 1867. Two months later, however, his feet, legs and thighs became enlarged and painful, and while bandaging diminished the swelling, his appetite became impaired and he died of exhaustion on February 8, 1868.

There are excellent specimens of *tuberculosis* in the museum (some showing tuberculosis of the larynx and trachea presented by Dr. J. Solis-Cohen, American pioneer laryngologist). Among the parts of skeletons illustrating *Pott's disease* is that of a child about two years old, pigeon-breasted, in which the loss of substance in the dorsal vertebrae due to caries had allowed the cervical vertebrae to fall forward in an oblique position forming a sharp angle which probably considerably compressed the spinal cord.

Another specimen of the same disease, from a powerful adult, shows the compact tissues of the affected vertebrae entirely destroyed.

A case of primary tuberculosis of the laminae and spinal processes of the spinal column was reported on February 6, 1894, by Dr. John B. Roberts because of its rarity, as some orthopedic authorities declared that primary tuberculosis of the laminae was unknown. The specimen is from a child of eight who suffered paralysis of both legs after a fall. Swelling appeared in the middle of the dorsal region, and Dr. Roberts, believing the case to be tuberculosis of the laminae, performed a laminecto-

my. The child died from shock and loss of blood, and a section of the spinal column was removed for examination. It was discovered that primary tuberculosis (for tubercular bacilli were found) had attacked the laminae and not the bodies of the vertebrae where it is usually found.

Coxalgia is illustrated in adjacent portions of a right innominate and femur. The articular surfaces are roughened and osteophytes are found around the outer surface of the ilium and about the acetabulum.

Dr. William Hunt, a former curator, presented a specimen in which an accident (4d) resulted in the coexistence of tetanus and paralysis. This is of note because Dr. Hunt was able to find records of only two other cases in which this condition existed. This was Dr. Hunt's own case which he described in detail.

The accident occurred on April 12, 1862, when a sixteen-year-old boy employed in a rope factory fell and became impaled upon an immense circular comb operated by steam and used for disentangling and layering hemp. The machine consisted of a large wheel covered thickly with polished iron spikes three and one-quarter inches long, measuring one-quarter of an inch at the base, with sharp points. It required an adept person to operate it and it is said that the boy's ambition led him to undertake the task in the absence of the attendant. His right arm and hand were badly lacerated by the spikes as far as the elbow, and his head so firmly fixed upon three of them that it required two men to remove him. Although he did not think he was severely injured and wished to walk home, he was admitted to the Episcopal Hospital where his wounds were treated. Those of his head and arm were secured by sutures, and water dressings applied to his face and head. Of the three punctures on the left side of the calvarium (the anterior half of which is now in the museum), two penetrated the frontal bone and one the parietal.

At the time, no brain injury was indicated, but he later became delirious at intervals, paralyzed on the right side and unable to speak, and could not use his jaws properly. Dr. Hunt suspected tetanus and after consultation with two other physicians his diagnosis was confirmed. The boy died on the tenth day after the accident and it was found that the membrane of the brain was lacerated at the points corresponding with the three punctured fractures.

TUMORS

The penetrating odor of formaldehyde greets one as he enters a room on the lower floor of the museum, for in here are jars containing a large variety of tumors, most of them from the original collection of Dr. Mütter, deposited in 1863. Neither the cases nor the jars are airtight, the ceiling of the room which is always damp is low, and with a negligible amount of ventilation the odor frequently brings tears to the eyes or results in spasms of sneezing.

There are many carcinomas in the group, but uterine fibroids, cysts and mammary tumors are most common. Some of the fibroids weigh as much as 75 pounds, and it is hard to realize that anyone would allow a growth to reach such proportions without doing something about it, even in the days when operations were less common than they are at present.

There are twenty-three known types of tumors in the collection besides those that are unspecified. One jar holds a fetal myxoma. The growth occupies the anterior portion of the neck of the fetus, hanging down from the inferior maxilla and extending from the jaw to the xiphoid cartilage. The fetus was expelled at twenty-six weeks. The two halves of the body are imperfectly developed and there is edema in the head and face. In another jar there is an example of myxomatous disease of the chorion that resembles a bunch of grapes. The cysts hang in festoons, having long

pedicles springing from the chorion itself or from other cysts. This was from a woman who believed herself pregnant, and after the usual labor pains was delivered of this mass. Dermoid cysts, dried ovarian cysts and a dried specimen of a tibia showing an enormous osteosarcoma may also be found.

LEPROSY

Leprosy, a disease as old as civilization, is shown in three museum specimens. Two, presented by Dr. J. C. Wilson in 1894, were sent to him by Dr. Benjamin Rake from the Trinidad Leper Asylum. One of these is the right foot of John Colston, a Hindoo, fifty years of age who had been an anesthetic leper for sixteen years. The other is the hand of William Green, a Negro, seventeen years of age, who had been a tuberculous leper for eleven years. The third specimen from the West Indies, presented by Dr. Ducachet, is a foot labeled "elephantiasis graecorum," defined as true leprosy. The soft tissues of this specimen are enormously hypertrophied, presenting an irregular and warty appearance. The toes are thickened and distorted.

The specimens from Trinidad were exhibited by Dr. Wilson at a meeting on April 4, 1894, in which the communicability of leprosy and the mode of propagation were discussed by ten eminent physicians (4e) and opinions on both matters differed. Dr. Benjamin Sharp of the Academy of Natural Sciences exhibited photographic lantern slides of the Leper Settlement at Molokai, Sandwich Islands, and Dr. H. W. Stelwagon and Dr. W. W. Welch showed pictures of lepers who had come under their observation.

In the Middle Ages, special hospitals, called lazar houses, were built for lepers. This was not so much to prevent contagion, to which little thought was given at the time, but because of the pity felt for the sufferers of the disease. In 1118, Maud, Queen of Henry I, established a home for forty lepers and herself attended them. Lepers were not allowed to wander freely about the town, and both men and women were attired in rust-colored clothing. The men wore the ordinary working dress of a monk with a hood, and the women wore thick veils. Oxhide boots reached halfway up the legs and were worn by both sexes.

DISEASES OF THE EYE

Among the many excellent wax models of various parts of the human anatomy, there are one hundred models showing numerous *eye diseases and deformities*. Aside from the large collection of old spectacles, the intricate apparatus used in the examination and treatment of the eye, the delicate instruments used in operations upon it and a few ancient testing devices, these models are the only items of ophthalmic interest in the museum. There is nothing to show the pathological conditions that may occur in this important organ, so they serve a real purpose by giving the students of ophthalmology and optometry an opportunity to see examples that they may not encounter in their studies except in the pages of a textbook. The models, made in France and purchased by the museum, are contained in five frames, each frame holding twenty specimens. The original labels are in French and some years ago Dr. Burton Chance kindly translated them into English.

The models show the eyelid, eyeball, iris, cornea, sclera, conjunctiva and lacrimal gland and sac involved in one disease or another. Here we see cancerous tumors, syphilitic ulceration, gangrene, epiphora due to lacrimal obstruction, exophthalmos due to carcinoma of the lacrimal gland, epicanthus, eversion and inversion of the eyelids, the eyeball pierced with foreign bodies, staphyloma, keratitis, iritis, synechia and strabismus, both convergent and divergent. There are eleven types of cataracts shown and four types of conjunctivitis. In few instances is so much shown in so small a space.

One day Dr. Chance was seen walking through the halls of the College with a cat-that-ate-the-canary expression on his face, and we knew from past experience that the sly look was due to his pleasure and satisfaction in a recent acquisition that he was about to present to the museum. Although this small object was familiar to many of his own generation, he knew that few of those younger than himself had ever seen one, and he was deriving the utmost enjoyment in displaying it. Looking at the specimen attached to the white card that Dr. Chance carried, one might surmise that it was an attractive pink translucent glass button. It is about one-half inch in diameter and polished to a shiny smooth surface.

It is not a button, however, for the card bears the information that it is a "crab's eye," which isn't a crab's eye at all, but a "calcareous concretion from the stomach of a crab, once used as a means of removing foreign bodies from the eye." It was donated, through Dr. Chance, by Mrs. Henry V. Gummere, and had been in the possession of her family since 1811, having been used by her forebear, a Nantucket sea captain. A certain type of bean, in early days, was also used for this purpose.

How successful the "crab's eye" was in removing foreign matter from the eye we do not know, but it moved several hundred objects in the Mütter Museum, being indirectly responsible for the rearrangement of the contents of every one of the thirty-four balcony cases, because it was suggested that such objects be separated from the bone injuries of World War I, which shared this area.

Naturally the first thing that comes to mind when we read of eye defects or diseases, are *spectacles*. We have over sixty in the museum, many of them presented by the late Dr. Chance. It is hard to picture the world today without spectacles—an indispensable device, but one that we take very much for granted. Progress in literature, art, science and industry is dependent upon them, for the major part of our education is obtained by using our eyes. Unfortunately we are not all born with good eyes, and there are few who are permitted to live out life's span without resorting to the use of eyeglasses sooner or later. In fact, without them many would be unable to earn a living after middle age.

Since printing with moveable type was not invented until the middle of the fifteenth century, and the few books that were available were hand-written and costly, and because few men could read and write anyway, there was no special need for spectacles to aid those with poor or failing eyesight before that time. We are told that in Spain they were first used as articles of adornment and to add dignity to the appearance of the wearer. After their introduction into Spain, they soon came into general use, and a Spaniard, Benito Daça de Valdes, wrote the first scientific book on them in modern language in 1623. In France, however, spectacles were worn to hide defects in the eyes. It was not fashionable to wear them in public, so lorgnettes were introduced which could be used only when needed. In the 1600s the value of eyeglasses began to be recognized in many countries, and eyeglass peddlers did a profitable business going from house to house, allowing those who could afford them to choose the pair best suited to them. This practice continued for many years.

In these days poor eyesight as well as other unhealthy conditions are recognized in early childhood by the doctors and nurses supported by the public schools, and at once steps are taken to remedy them. How often we see a tiny tot, looking like a wise little owl, peering through a pair of shiny spectacles, without which he might appear dull and stupid, not because he is mentally retarded, but because of his impaired vision.

After reading many articles on the history of spectacles (4f), we learn that no one

is quite sure who first invented them, although a Florentine, Salvino d'Armato, who died in 1311, is generally credited with their invention and Alexandro de Spina with making the invention public. The two men, it is said, heard of the lenses first described by Roger Bacon, inventor of the telescope in 1276, and conceived the idea of putting them in frames to aid those with poor or failing vision. The first eyeglass was a single lens—a magnifying glass—set in a frame and attached to a handle, by which it was held to one eye. This appeared in the last half of the thirteenth century. As it was hard for some to see, using only one eye and keeping the other one closed, these handled monocles were doubled, and the "scissors-spectacles" developed. The two lenses were placed where the blades of the scissors would be and when the handles were closed by the user, the lenses spread out before his eyes.

In the thirteenth century when the single lens was used, it was called a "spectacle." Later when two of these lenses were joined together with a nail or pin they were called a "pair of spectacles." Because these "nail-spectacles" as they were called, would not stay on the nose, the wearer was obliged to hold them on by the bridge, where sometimes a small knob was placed for convenience. This type disappeared after 1500, when a round bridge replaced the awkward angle formed by the union of the two monocles. While this improved type was slightly more comfortable, it still was no easier to keep on, so as reading became more popular with the advent of printing, some method by which they could be affixed to the nose had to be found and this was accomplished in many strange ways. One unusual way was for a spring to be attached to the bridge of the spectacles and passed through the hair and under the headgear to the back of the head. Sometimes this was fastened to the hat. Still another method was for a metal band to be fitted around the head and supplied with small hooks at the forehead on which to hang the lenses. Strings, attached to the sides of the spectacles and running over the ears with small weights at the ends to keep them in place, were also tried.

Spectacles with bows did not appear until the middle of the eighteenth century, and they were called "temple-spectacles" since the flat metal side pieces reached only to the temples, the ends terminating in round flat rings or cushions that allowed them to press into the temples with a minimum of discomfort, and so hold the glasses more tightly to the nose. Then, as an improvement over this method, bows were made into two parts, to slide back and forth along each part and so could be shortened or lengthened. It seems strange that such a long time should elapse before someone discovered that the ears could be used for something besides hearing. They make a perfect anchor for spectacles.

As the construction changed, so also did the materials of which the lenses and frames were made. Quartz, beryl or other precious stones were used for lenses before the manufacture of transparent glass was perfected, so that people wearing spectacles were sometimes spoken of as wearing "beryls." Frames were variously made of leather, horn, wood, tortoise shell, iron, copper, silver and gold. From 1500 to 1600 the frames were almost entirely made of leather, as it was thought that leather did not slip so easily. The oldest known pair were found in Nürnberg in the house of Wilibald Perkheimer, a supporter of Martin Luther, when the house was being taken apart to be moved to Wartburg, Perkheimer's birthplace.

The first spectacles were rather cumbersome, having large circular lenses and heavy frames. Lighter frames with small oblong and oval shaped lenses followed, and in the late eighteenth and nineteenth centuries these had become very small indeed. A few years ago rimless glasses were in vogue.

Naturally with the change in shape and size of spectacles, the cases are as interesting as the glasses themselves.

The ancient Chinese glasses are the oldest in the museum collection; just how old we do not know. Although it is thought that the Chinese may have been using spectacles before they were known in Europe, there are no writings to substantiate the fact. One ancient Chinese pair has large circular lenses of dark glass. The hinged bows are attached to the rim of the lenses and end in flat metal discs. The bridge is of the same heavy metal. Quite different is another pair labelled "ancient Chinese." The frame is made from one piece of tortoise shell and the lenses are only about the size of a 25-cent piece. The short bows are attached to the elongated sides of the rims. Tortoise shell was used by the Chinese for frames, because it was thought to be lucky, the tortoise being sacred to the Chinese.

The Chinese often wore frames with no lenses, considering spectacles to be a badge of extreme social and educational standing. In fact, Dr. Chance said that the ones he presented and which were brought to him from China, while they have lenses, were not purchased to aid the sight of the owner but to give him an intellectual appearance. Our old Japanese spectacles differ very little from the Chinese. The shape and construction of the cases are identical, differing only in the elaborate decoration.

We regret that we have not been able to obtain a pair of Benjamin Franklin's bifocals. Dr. Joseph McFarland tried zealously to get a pair that he knew existed but was unsuccessful.

We do, however, have the first pair of cemented bifocals made on the prescription of Dr. George M. Gould by Wall and Ochs in 1888. Among the papers and pamphlets on spectacles that Dr. Chance loaned to the curator was a photostat of a letter written by Thomas Jefferson to his Philadelphia optician, in which he ordered a pair of bifocals made to his specifications, similar to those of Benjamin Franklin.

Before 1843 eyes were not tested for prescription glasses because it was thought that both eyes were alike and a lens that was suited to one eye would suit the other. Therefore, many of our old spectacles have identical lenses, but it is surprising, when one slips on a pair of these curious eyeglasses, how well one can see through them.

BIRTH DEFECTS

Congenital deformities are numerous in the museum collection and always interest visitors. Chief among them is the plaster cast of the famous "*Siamese Twins*," Chang and Eng Bunker, who married the Yates sisters, raised large families and lived to the ripe old age of sixty-three (4g, 12a, 14a). They were born in Bangkok, Siam, in 1811, and in their native home they were known as the "Chinese Twins," since they were three-fourths Chinese, for their father was Chinese, and their mother, while a native of Siam, was bred by a Chinese father. The band which joined the twins, extending from the junction of the abdominal cavities, grew in elasticity as they grew, so they were able to stand side by side and even back to back. While this much freedom allowed them to engage in normal farm work and many sports, it did not permit them to avoid each other's blows in their frequent quarrels. They delighted in practical jokes and frequently in their travels would buy only one train ticket, making a rather difficult situation for the conductor. By exhibiting themselves for many years in the Barnum and Bailey Circus, they made a profitable living, which perhaps attracted the sisters as much as the personalities of the twins themselves. In later years they bought two farms 1½ miles apart in Mount Airy, North Carolina, and settled down to normal living, staying three days at each farm

alternately. One of Eng's grandsons served in the United States Forces in World War II, and his picture shows a good-looking young man with none of the Chinese-Siamese characteristics of his famous grandfather.

The twins were two different individuals, Chang being a heavy drinker of an irascible disposition, while Eng was good-natured and did not indulge in alcoholic debauches, nor, in fact, did he feel the effects of Chang's intemperance. Their characters are reflected in the homes that they occupied, Eng's being a rather dilapidated farm house indicating an easy going man with little ambition, while Chang's was attractive and well-kept. It is said that many of Chang's descendents received college educations while Eng's remained on the farm, evidently with the same lack of ambition as their father.

Chang died of a cerebral clot in 1874, and Eng died an hour later. Their physician kept their bodies in a good state of preservation for fifteen days by burying the coffin, encased in tin, in Eng's cellar under a layer of charcoal, until Drs. William H. Pancoast and Harrison Allen arrived from Philadelphia to perform the autopsy. We learned more about the tin in which they were "encased" in 1962 when a friend of Dr. Richard A. Kern, Dr. Worth B. Daniels of Washington, D.C., came to the museum to look over our material on the famous twins (4h). In one group of letters was one written to Dr. Allen by two of the children of Chang and Eng. Its contents may seem amusing to us, but I venture to say that it was a serious matter indeed to the survivors of the twins. It reads as follows:

Mt. Airy, N.C.
Apr. 1st, 1874

Dr. Allen

Enclosed you will find the receipt for bringing the bodies of Papa & Uncle from Salem to our house. You will please send the money by post-office order.

My Mother and Aunt were very sorry that we did not bring the lungs and entrals of our Father's with the bodies home, and as we did not bring them, you may keep them until further orders from the families.

Respectfully G,R, & S,D, Bunker

The museum has only the joined livers preserved in formalin, and it is not known whether the "lungs and entrals" were later ordered sent to Mt. Airy or disposed of in Philadelphia.

Dr. Daniels brought with him a photostat copy of a letter written by William Augustus Reich presumably to a sister on January 18, 1874. In part it reads: "I suppose you heard the Siamese Twins are dead. I got an order late Saturday evening for a large tin coffin. I made it. I worked nearly all night, finished it about noon yesterday cut out yesterday afternoon and soldered them up. It was a sight the people that was there. It was a long time before I could get my foot in at the door so crowded. It was like a camp meeting so many people horses and carriages. It was most night before I got through soldering them up----- The Siamese Twins is the greatest human curiosity in the world & who ever thought I would be the man to solder them up------ The Siamese Twins were nicely dressed in black with slippers on I helped lift them in their coffin it was a strange sight------It was a sight to see the people who came to my house to see me make the coffin. It was the greatest job I ever done.-----I sent you a sheet of the tin------I send you a drop of solder that dropped on the coffin as I was soldering them up yesterday."

One can almost feel the excitement as William Augustus Reich penned the letter to his relative telling of his connection with "the greatest human curiosity in the world."

Among the other birth defects is a plaster cast of a *bicephalic monster*. This is known as ischiopagus tripus (18). These twins were born in Ohio in 1870. They have a common trunk, terminating at each extremity in a perfect head and neck. Each end of the trunk is formed of a perfect

thorax, and lying on their backs they look as if two babies had been cut transversely and then put together again. The account states that there was only one umbilical cord and one placenta, both of unusual size. There is a well-formed pelvis springing from the right side of the abdomen at right angles, and two legs, perfect but for one clubfoot. On the opposite side of the abdomen is a rudimentary pelvis and the leg with the imperfectly formed foot.

One child was said to have been vigorous and healthy, while the other one was weak and emaciated, but both were good-natured. The pulse beats and sensations of the two children were different. The pulse of one child beat faster than the other's, one did not feel when the other was pinched, one fed while the other slept, and their attentions were attracted simultaneously by different objects.

A skeleton of a double monster, cephalothorocopagus, is very unusual (4i). This fetus was delivered of a woman in 1851. The frontal, parietal and temporal bones are those of a single head. The duplication starts at the base of the skull where there are two occipital bones, and to their condyloid processes the atlas of each vertebral column is joined. The skeleton is completely double below the head. There are two sterna to which the ribs and clavicles are articulated in the most unusual way. The right ribs and clavicle of the right skeleton and the left ribs and clavicle of the left skeleton are joined to the posterior sternum, while the left ribs and clavicle of the right skeleton and the right ribs and clavicle of the left skeleton articulate with the anterior sternum. The other bones in both skeletons are normally developed and articulated.

The account of the case states that the mouth was a single cavity but contained two tongues, separated posteriorly by a mass covered with skin. The fauces and upper part of each pharynx were distinct and each contained two tonsils. There was a single stomach but its shape indicated two stomachs may have been fused. There were two large intestines, a single liver and gallbladder, two kidneys in each trunk, and two hearts, one rudimentary, the other irregularly developed, but from its base arose an aorta for each child. Organs of respiration were normal for both.

Reposing on the top shelf of one of our old cases is *a dried specimen of a megacolon* (10), removed from the body of a twenty-nine-year-old man who, because of the peculiar shape and large dimensions of his abdomen was exhibited for eight or ten years as the "Wind-bag" or "Balloon-man" in a Philadelphia museum. Shortly before his death, applying at a hospital because of constipation and general disability, he was examined, and instead of the large abdominal tumor suspected, the enlargement of the colon was found. The abdomen continued to increase in size until its circumference of 7 feet, 2½ inches exceeded his height of 5 feet, 7½ inches. The colon was at least ten times wider than normal—dimensions equal to that of a cow—and its estimated weight 47 pounds.

It was concluded by those studying the case that the anomaly was due to an anomalous arrangement of the muscular fibers of the longitudinal and circular coats of the colon, not to an acquired morbid change, and that the enlargement was the cause and not the result of coprostasis.

The museum collection of birth defects was considerably augmented in 1965, when the Wistar Institute presented on permanent loan some handsome display cases and most of the specimens contained in them. They also included dissections and models of the normal growth of the human fetus, dissections demonstrating the development of the vertebrate brain from fish to man and head sections showing the anatomy of the interior of the skull.

In the museum's own collection are head

sections showing the interior of the skull purchased in 1911 from Dr. Joseph P. Tunis, a graduate of the University of Pennsylvania and a former Fellow of The College of Physicians. These sections are contained in attractive rectangular jars and accompanying each is a photograph with all parts of the brain marked, making them especially valuable for study.

A large replica of a brain, purchased for the museum in 1884 by Dr. S. Weir Mitchell, arouses the curiosity of many of our visitors. It is called a "phantom brain" and was made by R. Buchi of Bern, Switzerland. It was constructed to show the course of the fibers of the human brain and their relation to the several nuclei and the spinal cord. It is 3½ feet in height and 2½ feet wide. Unfortunately, because of dust accumulated through the years and fading from age, the colors are hardly distinguishable at this date.

The basal fibers, of a large size, are seen in their appropriate places. The spinal cord, made up of ganglia and columns of wires of different colors, is represented throughout a portion of the cervical region. These columns of the cord of different colors which distinguish their functions lead to the ganglia of corresponding colors, or to the areas in the cortex which are marked by cords of similar color. The motor fibers in the anterior and lateral columns of the cord are painted red, and from the anterior and lower portion of the medulla these cross and radiate to the cortex. The fibers of the posterior column are colored blue and cross in the medulla, forming the posterior third of the internal capsule. The green fibers in the exterior portion of the lateral column lead to the cerebellum, crossing near the superior surface. The yellow fibers place the basal nuclei in communication with the cortex. The white fibers merely join right and left parts.

While the model seems very complicated, it does seem to be a simple way to learn the workings of the human brain.

FRACTURES

Fractures, both united and ununited, occupy considerable space in the museum. Among them are some unusual ones involving the skull. One of these is the skull of a German who died as the result of a fracture caused by a brick thrown during a riot in Baltimore in 1839.

Another skull shows a gunshot fracture of both orbits. This man was a soldier wounded in the battle of Cold Spring Harbor, Va., in August, 1864. The injury made him totally blind until his death five years later.

The fracture of the temporal and both parietal bones of another skull resulted from a fall sustained by a man in his eagerness to get to a fire at the Orphan Asylum in Philadelphia in 1822.

The museum has only the cast of a cicatrix years after a perforating gunshot fracture of a skull occurred (11), but the case is unusual. Private Patrick Hughes, twenty-three years old and a member of the 4th New York Volunteers during the Civil War, must have considered himself extremely lucky after his experience. Wounded in the battle of Antietam on September 17, 1862, his skull was perforated by a conoidal musket ball which entered half an inch posterior to the junction of the coronal and sagittal sutures on the median line and passed backward under the scalp, escaping one inch above the occipital protuberance. The wound was four inches in length producing a compound comminuted fracture of the skull of the same extent. He was admitted to Mt. Pleasant Hospital eight days after the injury occurred, and by then so much tumefaction existed that it could not be ascertained whether or not the brain or its membranes were injured. The field report stated that the ball traversed a portion of

the brain. He dragged himself from the field and was conscious and able to answer questions rationally. By December 1862 he was able to walk around the ward and was still alive twenty years later.

A patient of Dr. Caspar Morris at the Pennsylvania Hospital in 1824, grateful for the kindness and care given him by the doctor, willed him his fractured skull after death (4j). The patient, Mr. Lauderback, at the age of sixteen suffered a severe skull and brain injury when his head was caught between an over-turned cart, in which he was riding, and the pavement. On examination by Dr. Morris and Dr. Joseph Parrish, who was surgeon at the hospital, it was found that the coronal suture had separated leaving the edges of the frontal and parietal bones about a quarter of an inch apart. His condition was critical for some time, but by twenty-six days after the accident he had improved, except that he had double vision when both eyes were used; to remedy this he wore a patch over one eye. Later Dr. Morris removed portions of the detached bone, after which his sight became normal and he recovered completely except for the loss of hearing in one ear. In 1840, however, he began to have attacks of epilepsy which Dr. Morris and Dr. Parrish thought might be caused by pressure of portions of bone. These attacks became more and more frequent, and in 1848 he became insane and was committed to a lunatic asylum where he remained until his death in 1864.

After his death, Dr. J. Cheston Morris, as the beneficiary of his father, Dr. Caspar Morris, inherited the man's head. He, together with Dr. Packard, decapitated the corpse and took the head to the Episcopal Hospital for examination and mounting. They found that the fissure, about four inches long between the frontal and parietal bones, had been partly closed with a firm membrane attached to the dura mater, and they also discovered the united fracture at the base of the skull. The brain, however, showed little abnormality except that the serum had collected in the two hemispheres and the brain was harder than usual. The skull, aside from the extensive bone injury, is of interest because of a peculiar paramastoid process said to be characteristic of the skulls of some of the lower animals. It was presented to the museum by Dr. J. Cheston Morris.

There are about twenty specimens of *gunshot fractures*, presented by the Surgeon General of the United States. These are the results of experiments which were made by Dr. Guy Hinsdale, a former curator, and Major LaGarde at the request of the government in 1893, in order to compare the damage done by two calibres of weapons. The tests took place in the Frankford Arsenal in Philadelphia. After the bodies were shot, they were taken to the Mütter Museum and dissected by Dr. Hinsdale. The resulting specimens were exhibited at the World's Fair in Chicago, after which the majority were sent to the Army Medical Museum in Washington, D.C., and these few deposited in the museum. The calibre of the rifle used, the range at which it was fired and in most cases the size of the bullet employed, were all considered. The picture of Dr. Hinsdale and his companion shooting dead bodies in the Frankford Arsenal is a rather gruesome one, but it contributes another page to the interesting history of the museum.

Gunshot fractures of almost every type, involving nearly every bone in the body, may be found in the specimens from the First World War. They differ from the injuries of the Civil War and Spanish-American War because of the character of the missiles used. This collection, showing injuries received and collected by the Base Hospital Unit #10 of the Pennsylvania Hospital, is a College possession, deposited in the museum in 1919. We count it among our "famous" collections and are indebted to the late Dr. Edward B. Krumbhaar, pathologist on most of the cases, for the

preparation and mounting of the specimens for display purposes. Each case is adequately described with the initials of the person, his regiment and military status, the date he was wounded and a detailed account of the injury, with the final results after admission to the hospital. There are over one hundred items in the collection, and in all but about twenty cases the patients succumbed from two to fifty-three days after being hospitalized, from gangrene, pyemia, septicemia, peritonitis, pneumonia, meningitis and other conditions that resulted from the injuries.

Specimens showing luxation of bones form a small part of our bone collection. Three of these are especially interesting. One of them consists of the cervical vertebrae with luxation of the atlas at an angle of 45 degrees. It was removed from the body of an eminent lawyer, addicted to drinking, who committed suicide by hanging. Recovering from an attack of delirium tremens, and while his servant was absent getting him a glass of water, he tied a silk handkerchief around his neck, attached it to a projecting gas pipe and jumped, crushing the spinal cord and causing the atlas to leave its articulation with the axis as the head was twisted violently to the right.

Another specimen involving an obliquely contracted pelvis, the upper half of the left femur and the fourth and fifth lumbar vertebrae shows luxation of the femur on the ilium, making *a false joint*. The femur is no longer in contact with the old acetabulum which has accumulated ossific deposits caused by the trochanter minor rubbing against the lower margin. A new socket is immediately above and behind the old one and is well formed, being excavated at the center and built up at the margin. The head of the femur is flattened and compressed. The trochanter minor is in the shape of a button and worn by attrition with the pelvis. The vertebrae deviate to the left to compensate for the shortening due to the dislocation.

Dislocation of the knee is illustrated in another specimen. The leg is displaced backward and rotated outward and is bent at an angle of 135 degrees. The anterior portion of the inner head of the tibia is in contact with the posterior articulating surface of the inner condyle of the femur. The outer head of the tibia is carried farther backward. Both opposing surfaces are roughened and eroded. The patella is displaced outward and rests on the outer tuberosity of the femur. There is no ankylosis but there is slight roughening of the contiguous surfaces.

FAMOUS COLLECTIONS

We have spoken of the Hyrtl collection of skulls (4a), but this is not the only collection bearing Professor Hyrtl's name. There are also his "*Organs of Hearing*." This exhibit took fourteen years of preparation by Professor Hyrtl and infinite patience and technical skill. Two cases contain the ossicles and labyrinths of the ear of man and all mammalian families. The first row in one case shows the labyrinths belonging to man at different periods of life beginning with a five-month embryo. Among the animal labyrinths, the smallest development in comparison to the size of the body belongs to the whale and dolphin.

In the case containing the ossicles of the ear, the tiny bones of the insectivora, rodents and marsupials are fastened to small elevated blocks to bring them nearer to the glass in the frame. Example of the human tympanum are in the upper corners of this case, of the buffalo and embryo of the elephant in the lower.

Professor Hyrtl was indebted to Professor Ducrotay de Blainville for the labyrinth of the embryo of a hippopotamus. An interesting story is connected with this. Since the time of the Roman emperors, no living hippopotamus had come to Europe, so when the French Government sent M. Arnauld d' Abbadie as ambassador to the King of Seboa, he was also given the task of

obtaining a young hippopotamus. The king suffered from rheumatism, for the relief of which M. d' Abbadie recommended the fat of a pregnant female hippopotamus. Hunters were dispatched, and one returned with a pregnant female. M. d' Abbadie rubbed the King's limbs with the fat and the pain disappeared. The fetus was preserved and sent to the Jardin des Plantes where Professor de Blainville allowed Professor Hyrtl to remove the petrous portion.

The museum also purchased from Professor Hyrtl a large number of corrosional specimens, most of which are still intact (4a). They consist of human placentae and various organs of animals. The veins and arteries of the specimens were injected with a preparation that kept them in their original form while the rest of the organ was eaten away by a corrosional formula in which it was immersed.

One small corner in the museum is devoted to the display of the the *Cryer Collection*, a group of skulls and cranial segments illustrating various phases of the anatomy and surgery of the jaws and paranasal sinuses prepared by Dr. Matthew H. Cryer, at one time professor of oral surgery in the Department of Dentistry of the University of Pennyslvania, and oral surgeon to the Philadelphia General Hospital.

Dr. Cryer observed that there were as many variations in the internal anatomy of the head as there are in the external appearance, influenced by climate, occupation, disease and age, and concluded that often the success of an operation depended on this knowledge. Over a period of twenty years he dissected hundreds of skulls and assembled his findings in the book, *Studies of the Internal Anatomy of the Face*. He stated that his main object in writing it was "to present a digest of some newly revealed facts relating to the internal anatomy of the face—facts that have an important bearing on all surgical operations involving this region."

In 1924 Dr. Cryer's widow presented his collection to the Mütter Museum. The specimens were identified and arranged by Dr. Robert H. Ivy, a nephew of Dr. Cryer and a long-time professional associate. Descriptions were taken from the second edition of the book, in which photographs of many of them appear.

Dr. Cryer received much encouragement and assistance from other members of the medical and dental professions, among whom was Professor W. F. Litch who made it possible for him to begin the study by a gift of a number of undissected heads. Professor Thomas C. Stellwagen made available his fine collection of infant skulls, and Professor Edward C. Kirk made arrangements for him to obtain an unlimited supply of material from the dissecting rooms of the University of Pennsylvania.

Dr. Cryer also made a study of peculiarities in animal development as well as in sinus and dental abnormalities in human anatomy. Many animal specimens devoted to comparative anatomy are in the Cryer Collection. A section of a greyhound's skull shows no true maxillary sinus, and the skull of a badger shows the root of a tooth in the floor of the nasal cavity, similar to the roots shown in the human nasal cavity. A caries is found in two gorilla skulls presented by Dr. Joseph Leidy in 1876, and is also present in the skull of a dog and in a portion of an elephant's tusk.

Another famous collection is *Adam Politzer's Series of Tympanic Membranes*. These were prepared by Professor Politzer and exhibited by him at the Centennial Exhibition in 1876. They were purchased by the museum for eight hundred dollars, and later Professor Politzer was attacked for this transaction, because it was said that he sold specimens obtained from his patients at the Old People's Home. He wrote to Dr. Thomas Hewson Bache, who

was then curator, asking that a letter be sent to him certifying that he had refused to sell the specimens (which he had given to the museum), but had allowed the museum to pay eight hundred dollars for their mounting and for the case in which they are displayed. The specimens are both normal and pathological. Horizontal and transverse sections are cut to show variously the ear drum, the ossicles, the semicircular canals, the cochlea and eustachian tube of children and adults. There are many sections that show calcareous deposits and degeneration of the tympanic membrane and double and triple perforations of the drum. Caries of the posterior wall of the auditory canal and osseous ankylosis of the stapes are also shown. Two specimens illustrate congenital constriction and dilation of the auditory canal.

There are over three hundred lantern slides in the museum showing the *pathology of the eye and ear*, presented in 1923 by Dr. B. Alexander Randall, emeritus professor of otology at the University of Pennsylvania, who had done postgraduate study and research at the University of Vienna with Adam Politzer. Dr. Randall, esteemed by noted otologists at home and abroad, was practically the founder of the Section on Otolaryngology of The College of Physicians. The slides present conditions observed and preparations made by himself.

Dr. Randall was also instrumental in the acquisition by the museum of a collection of Dr. J. B. Fraser of the University of Edinburgh, who delivered a lecture on otosclerosis before the Section on Otology and Laryngology of The College of Physicians in May, 1923. He called to the attention of the Mütter Museum Committee the excellent collection of over 200 lantern slides on the pathology of the ear that Dr. Fraser had brought with him, and an arrangement was made with the secretary of the American Laryngological, Rhinological and Otological Society whereby sets of these slides could be obtained, and the museum purchased them. The conditions they display are congenital afflictions, injuries, laryngitis with resulting deafmutism and otosclerosis. There is a descriptive catalogue of the slides and a special cabinet to accommodate them.

Dr. Chevalier Jackson's Collection of Foreign Bodies, removed from the air and food passages of individuals at different times with a simple little instrument called the bronchoscope, attests to the fact that children are not the only ones who swallow unusual things. The collection, with full case records, sketches and X-ray films, was presented to the museum by Dr. Jackson in 1926. The items are housed in small glass-covered drawers in twelve metal cases. There are 180 drawers, and since each drawer contains fifteen specimens, there is a total of 2,700 foreign bodies. These consist of a large variety of hardware, pins, safety pins, both open and closed, coins, jewelry, buttons, toys, such as jacks, particles of food, nuts, seeds, rubber tubing and even large dentures and rosaries. Such large specimens amaze visitors who have difficulty in swallowing a small pill, and it is equally hard to understand why some tiny food particles should cause so much trouble.

Many people for many reasons collect many things. Dr. H. Augustus Wilson of Philadelphia, an orthopedic surgeon interested, among other things, in the deformities of the pedal extremities of man, collected shoes (4k).

His *collection of seventy-three pairs of shoes*, representing the foot-wear of many nations, is in the Mütter Museum and are as varied in design and material as the characteristics of the people who wore them. There are shoes made from hide, wood, fur, silk, straw and leather and—just like today's shoes—made with open toes, open heels, and platform soles. Some are

plain, some highly decorated, embroidered and inlaid with pearl. Some are light in weight while others are so heavy the wearer must have had some difficulty in carrying them about. There are eleven pairs of shoes from northern countries, thirty-nine from temperate zones and twenty-three from the tropics. Dr. Joseph McFarland, a former curator, wrote a lengthy article on shoes and on our collection in particular, in which he states that while Dr. H. Augustus Wilson was a single collector, his collection contains a fair representation of almost every type of shoe shown in much larger collections.

Among the interesting ones in the museum are Egyptian burial slippers, dated 200 B.C., Spanish sandals worn by an archbishop of Toledo in 1492, and small embroidered silk shoes, measuring four inches from toe to heel, worn by aristocratic Chinese women when binding the feet was the custom. From Abyssinia we have odd embroidered shoes with long turned-up toes, and from Arabia a man's very heavy shoe, made cumbersome by many layers of leather of the sole. Pilgrims to Mecca wore a black leather sandal with a retaining strap and a decorated sole. Very unusual are Moroccan platform shoes made of wood and inlaid with pearl and the curious Korean canoe-shaped wet weather shoes with stilt-like heels.

It is a well-known fact that the condition of the foot of an individual has much to do with his general health and the shoes he wears has much to do with that condition. It is thought that Dr. Wilson, being an orthopedic surgeon, had this in mind when he started his collection of so many types of footwear.

Our first several months at the College were spent, in part, in getting acquainted with the contents of the various cupboards and drawers in the museum. In a large drawer in one of the large compartments in a correspondence file, we found seven or eight ring binders, all nicely labeled, most of them containing minutes of the meetings of the Mütter Museum and College Collection Committee. One held many notes on giants, written by Dr. McFarland when he was preparing his paper on the Mütter American Giant, and another listed rules in connection with the care and operation of the museum. The last volume, however, contained a collection (4-1). A small label was pasted on the first sheet in the book, which read, "*P. A. Browne Collection of hair representing different nationalities and different diseases mounted and described by P. A. Browne, LL.D. 1851, Presented by Dr. S. Weir Mitchell.*" The book contained many sheets of brown and light blue paper to which were attached, by what seemed to be court plaster, various locks of human hair, as well as wool and fleece from sheep and goats.

We had no idea who P. A. Browne was or why he collected hair, but fortunately Dr. McFarland, former curator and amateur sleuth, had also been snooping at one time, and finding the collection, had written a lengthy article about it in 1939. He received a great deal of information from another Peter Arrell Browne of Philadelphia, great-grandson of our Mr. Browne, who told him that the collector of hair was born in Philadelphia in 1782, had studied law but had many other interests. In fact, he took a very active part in the affairs of the city. Dr. McFarland's paper states, "He was a botanist, a mineralogist, a geologist and publicist, as well as a lawyer, and he attained to a number of unusual honors. Some institution conferred the degree of LL.D upon him, the 'Society of Immortals' conferred membership upon him, and he was elected to membership in the Société Impériale Zoologique d'Acclimation."

The collection contains some very unusual specimens of human hair, such as hair grown after death, hair from a woman 103 years of age, new growth of hair after eighty-nine years, hair from a white albino

and hair from pregnant women. Sixteen different diseases are represented in the diseased hair, most of them donated by Dr. William Pepper.

We learn also, from Dr. McFarland's paper, that Mr. Browne put much importance on hair in determining the race of a person, and the quotes from Mr. Browne on this classification: "Having shown that there are three distinct species of the pile of the head, A. Cylindrical, B. Oval, C. Eccentrically Elliptical, if we can prove that there are three portions of men who now exist, and from time immemorial have existed, the covering of whose head, respectively, do, and have, uniformly, correspond with these three species of pile of their heads, they belong to three species of men." This he did prove in his study of hairs from all races of men.

A rather more impressive part of his collection was donated to the Academy of Natural Sciences by his widow. Among other hairs, it contained locks of hair from the heads of fourteen of the first fifteen presidents of the United States. One collection was supposed to have been given to the Smithsonian Institution, but it was never located.

UNUSUAL SPECIMENS

Visitors are often curious about a large plaster cast that reposes on the bottom shelf in one of the museum cases. It is the postmortem cast of part of the body of a Negro who for many years had an enormous scrotal hernia (4m). The scrotum was so large that walking was very difficult; he was obliged to crouch and with his forearms and hands form a sling for it.

The cast was presented by Dr. Thomas Dent Mütter, together with the body of the man, which was later (1938) cremated by permission of the legal authorities and the Council of the College, because it had become useless, and a sweetish odor that it exuded had become very offensive.

I am sure many persons must have read the amusing article entitled "The Dead Chinaman," written by Dr. McFarland in 1942 (4m). This was the body to which he referred, although, as our records show, the man was a Negro, not a Chinaman. According to Dr. McFarland's account, the oblique eyes in the body seemed to indicate that it was oriental and the information establishing it as the body of a Negro had not yet been uncovered. The scrotum had been laid open and disclosed that practically all of the intestines had left the abdomen and descended into the hernial sac. When I came to the museum the body had already been destroyed, but the cheap box lined with meager upholstery and containing a small ticking pillow was still in the storeroom. Because of the offensive odor still sticking to it which permeated every corner of the room, permission was asked for its disposal. This was granted so that all that remains of this unusual acquisition is the plaster cast.

The disposal of the body of the man, however, was not quite as simple as removing the box. During the years an enormous amount of junk had accumulated in the museum, including the dead body, and the members of the Committee on the Mütter Museum were in favor of getting rid of all of it including the Chinaman, but before that was accomplished the yearly election took place and a new committee was formed, the chairman of which was very meticulous in the performance of his duties. He called the attention of the other members to the clause in Dr. Mütter's Deed of Gift that "no one shall be permitted to remove from the College building, except for necessary repair or preparation, any article belonging to the said Mütter Museum after the same shall have been deposited there." Although personally he agreed that all of the junk should be discarded, because of the clause he thought that the committee should first seek legal advice. This was done and on May 23, 1937, permission was given for the disposal

of all of the junk. Now, as Dr. McFarland states in his article, "All was plain sailing, and all of the rubbish soon disappeared, except the dead Chinaman."

We continue the account with the last part of Dr. McFarland's amusing story, verbatim:

"How does one dispose of a dead body?

"If one were to move into a new house, and in cleaning up the cellar find a coffin containing a dead body hidden in a coal bin, how should he proceed? Dismember it and gradually incinerate it in the domestic heater? If unexpectedly observed engaged in this operation, what might the result not be? Dismember it and mix it with the ashes? Discovery would be certain and explanation difficult! No, there must be some orderly legal method of action by means of which one can secure immunity from suspicion and criticism.

"The Chairman of the Committee is not only a professor of anatomy. He is also the Secretary of the State Anatomical Board, and in both capacities is accustomed to receive, store and distribute dead bodies. He now came to the rescue, remarking that the next time that he had his car at the College, he would take the body out of the box, put it in the back of the car and take it to the Anatomical Institute, to be incinerated, before burial according to the rules of the Board, with appropriate religious rites.

" 'Ah yes! said a bystander, 'don't you know that it is illegal to transport a dead body in an automobile?'

" 'And what would the people on 22nd Street think if they saw you carrying out the dead man, or the people on Clinton Street think whey they saw you taking it in?'

" 'Yes indeed," said a third, 'and what would the cop that holds you up in traffic say when he'd see your rider?'

"So the matter was deferred, and an endeavor made to proceed along strictly legal lines. A visit, therefore, was made to the Coroner's office.

"Now it has long seemed to many of the wide awake members of our profession that the office of Coroner is anachronistic and should be abolished. All of the work can undoubtedly be done, and better done by the police, the district attorney and qualified medical experts employed as needed for the particular case to be considered. The experience of that visit confirmed this opinion.

"The Coroner himself was out, but a deputy listened to the story presented to him in detail, after which he asked why it had been brought to him. Carefully it was explained that it was thought that there might be difficulty in getting rid of the body, and that 'if he was willing to release it, he might tell us how to proceed.'

" 'It's none of the Coroner's business,' he then said, 'it is a matter that belongs to the Board of Health.'

" 'But what has the Board of Health to do with a dead man found in a cellar? He might have been killed and hidden there.'

" 'I tell you it is only a matter for the Board of Health. Go and tell them about it, and they will tell you what to do.'

"He rose and there was nothing to do but follow orders.

"At the office of the Board of Health we were politely asked our business which, when explained, brought out the remarkable assertion that the City Board of Health had nothing to do with such matters, but that it would be presented to the Pennsylvania Health Department. Why? No explanation, but a mere repetition of the statement.

"But how to get into communication with the Pennsylvania Health Department, which has its office in Harrisburg? The Philadelphia office kindly put us into telephonic communication with Harrisburg and the proper official, the matter was again explained, and the astonishing answer was received: 'All unclaimed dead bodies belong by law to the State Anatomical Board. Your body being unclaimed,

belongs to it, and to get rid of the body, communicate with the Secretary' (whose address he gave us, and who turned out to be also the Chairman of the Mütter Museum Committee). So, the whole matter for the second time, finally and legally (?) was left in his hands.

"It had now ceased to be a private matter, so that at a convenient time the State Board undertaker's truck arrived and the little mummy was removed—unfortunately leaving the smelly coffin behind.

"Before closing the account, however, I must ask you to imagine what might have happened, had the chairman, with the mummy on the back seat of his car, driven down Chestnut Street, and somewhere, say about Twelfth Street where the traffic is thickest, met with some slight misadventure for which a 'cop' called him down:

"'Are ye blind or only dumb that ye drive through a red light?' Then approaching the car, peering into the window to see who the occupants are, and seeing the corpse—

"'Holy Mither, what hev ye got there, a dead man? Don't ye know ye can't be drivin' around with a dead man in yer car? Don't try to explain, ye can tell it to the Sergeant when ye get to the station house.'

"How much he would have had to tell."

And so ends the story of the Dead Chinaman, the cast of whose scrotal hernia we have in the museum.

Not every one in Philadelphia is acquainted with *Mrs. Ellenbogen, our "petrified" lady* (4n), but her fame has traveled far and wide, so one is not surprised when a visitor asks, "Where can I find the soap lady?"

She shares a glass coffin-like case with two mummy feet and one will notice, with surprise, that a ribbon still adorns one scanty lock of hair. Her body is black with the dust and dirt that she has accumulated since 1875, and the open mouth discloses that she is toothless. She died of yellow fever in 1792, but the disease is not responsible for the chemical change in her body. It was not turned to stone as the word "petrified" implies, but was converted into an ammoniacal soap, a change that sometimes takes place during the decomposition of bodies buried in damp ground. It was obtained and given to the museum by Dr. Joseph Leidy, who heard that bodies, some petrified, were being disinterred in the vicinity of Fourth and Race Streets in Philadelphia. He hurried to the spot and found this to be true. The story goes that Dr. Leidy, wishing to obtain two of the adipocere bodies, one for the Wistar Institute and one for the Mütter Museum, approached the contractor who told him that he could not release the bodies to Dr. Leidy because of the relatives they might have, but if he had an order to deliver them he might possibly be able to oblige, whereupon Dr. Leidy retired to a certain drug store and wrote an order for the contractor to deliver the bodies of his aunt and uncle. The deal was consummated as a bank-note changed hands.

One document referring to the Petrified Lady was found in the archives of the museum! It is a receipt for money paid for the specimen and reads as follows:

Nov. 18, 1875

Dr.
To Dr. Joseph Leidy

Expenses on the procural of the adipocere body $7.50

Received payment
Joseph Leidy

Below the signature, Dr. Leidy has written a brief explanatory note: "The above amount is one-half of the sum paid persons through whose connivance I was able to procure two adipocere bodies, one for the College of Physicians and the other for the University."

Dr. McFarland did a great deal of research before writing a paper on the body, and some things that he discovered make us think that probably we should change

the name of the lady to the Mysterious Petrified Lady. She was supposed to have died of yellow fever in 1792, yet no yellow fever epidemic occurred in Philadelphia in 1792. Her name was supposed to be Ellenbogen, but no persons by that name are thought to have been in Philadelphia before 1836, and there is no record to show that anyone with that name died of yellow fever in 1792. Dr. McFarland could also find no record of a cemetery being at Fourth and Race Streets where the bodies were supposed to have been disinterred, nor could he find any authorization for the removal of any Ellenbogens or any other bodies in that vicinity.

There are some rare exhibits in a small wall case that one sees as he enters the museum. Here one will see death masks of Dr. Joseph Leidy and Dr. William W. Keen, calculi removed from the bladder of Chief Justice Marshall, a cast of the left hand of Dr. David Hayes Agnew and *a bottle of opium*. What, you may ask, is a bottle of opium doing in a medical museum? Here is the story.

In February, 1937, the chairman of the Mütter Museum Committee received a letter from the late Dr. Charles D. Hart, inquiring as to the whereabouts of a cube of raw opium that he had presented to the museum, which his grandfather, Dr. Charles D. Meigs, had had hermetically sealed in a bottle, with the request that it be kept intact for fifty years and then analyzed to determine its deterioration (13). None of the committee had seen the bottle or heard of its existence, but it was finally located. The label states that it is "Turkey Opium" that contained 10% morphia when it was bottled on December 30, 1853, for Dr. C. D. Meigs, by Samuel Simes, "Dispensing Chemist," and also that it was not to be opened until 1890. Beneath this in pencil was written, "Given to C.D.H. Dec. '99," which evidently was the date it was given to Dr. Charles D. Hart by his grandfather, but there is nothing to indicate that it had been opened in 1890, so presumably it was still intact.

At the insistence of Dr. Hart, a chemist was contacted to assay the opium, but after much correspondence, this gentleman got no further, before his demise, than surmising, erroneously, that the last note on the bottle might refer to an assay made in 1899 by some chemist or pharmacist whose initials were C.D.H. Dr. Hart, determined to have his grandfather's wish carried out, even belatedly, continued to plague the Mütter Museum Committee, so Dr. Horatio C. Wood, Jr. arranged for Professor Arthur Osol, director of Chemical Laboratories at the Philadelphia College of Pharmacy, to assay the specimen. In April, 1939, Professor Osol reported that the sample contained 9.70% of anhydrous morphine, from which the conclusion could be drawn that morphine in opium is substantially stable over a period of eighty-six years. The committee agreed that the assay was of sufficient interest for publication, and at their request, Dr. Wood and Professor Osol wrote an article on it that appeared in the *American Journal of Pharmacy*. The correspondence discloses that Dr. Hart was pleased at the fulfillment at long last of his grandfather's desire, and, no doubt, his satisfaction was a relief to the previously harassed Mütter Museum Committee.

Besides the bottle of opium, and an honorary Japanese physician's sword, two very unusual and rather gruesome articles were presented by Dr. Hart, and they are historical rather than medical. One is a framed photograph taken by an officer of the Fat Chan River boat at Canton in 1890, depicting the "Execution of Ling Chee," or the 1,000 cuts of knives, the punishment in 1890 for patricide—and the knives certainly proved effective on Ling Chee!

The other specimen, contained in a barrel-shaped wooden box, is the amazingly realistic reproduction of the head of a Chinese gentleman who had just been

decapitated. It was brought to the United States in 1896 by Dr. Hart, and he stated that pandemonium reigned for a brief time on the steamer during a heavy sea, when the box fell over and the head rolled out into the corridor from his open stateroom door! Dr. Hart explained that for centuries such barbarism was practiced by the Japanese. Being descended from the Malay, they were head-hunters, displaying the heads as trophies. About this time in 1896, one Japanese officer sent 210 Chinese heads to Japan as trophies and this number was exceeded by another officer who sent 220. Dr. Hart was of the opinion that this model was an artistic trophy. The head is usually displayed on the top of the box, except when occasionally we briefly commit it to the inside.

No one should be surprised at what he may find in a medical museum where objects have accumulated since 1849, but it was something of a shock one day to find in the nether regions of a filing case a Royal Baking Powder can containing, according to the attached label, a "*Piece of the thorax of John Wilkes Booth, the Assassin of President Lincoln April 14, 1865 procured at the postmortem on the 'Monitor', opposite the Navy Yard, Washington, by the Surgeon General and Staff, and Presented by Mr. George W. Hallowell, messenger to the Surgeon General.*" A small bottle inside the can contained the specimen (14b). Dr. Joseph McFarland, then curator, was not at all excited by the discovery and hurriedly replaced it in the drawer with the curt remark, "Less said about it the better." So there it has remained, almost forgotten by the present curator and probably unknown to almost everyone else. But this small piece of human anatomy is an accepted and catalogued museum specimen and, it seems, should be on exhibit if for no other reason than the part taken by the medical profession in the tragedy. Six physicians either attended Lincoln at the time of the assassination or were present when Dr. J. J. Woodward performed the autopsy. Dr. Frederick May, a prominent Washington physician and surgeon, and professor in the medical department of Columbia University, participated in the identification of Booth's body. Dr. Samuel Mudd treated him for the broken ankle he received when he leaped from the box to the stage after the assassination; for his suspected part in the plot, Dr. Mudd was sentenced to life imprisonment at hard labor. After four years, however, broken in health, he was released by the order of President Andrew Johnson.

According to an article by Drs. A. L. Herring and Robert W. Prichard (14b) on the assassination of Lincoln and the capture and death of Booth, the body of Booth was returned to Washington on the monitor *Montauk* and parts of it deposited in the Ford's Theatre Building when it became the home of the Army Medical Museum in 1867. It is probable that that is the date the specimen was presented to the Mütter Museum.

There are two specimens of *human horns* in the museum collection. One is the actual growth removed from a seventy-year-old woman and the other is a model of a human horn shown in its original position.

The actual specimen is one-half inch in diameter and is twisted like a ram's horn. It measures eight inches in length and our records state that it was a second growth and of seven years duration. It was presented by Dr. S. Beau, but no further information can be found in the literature, so it is evident that the doctor did not report it in any of the medical journals.

It is not known when the model of a human horn was deposited in the museum, and we have been unable to find a record of a case in any way resembling it. The growth is almost nine inches long and one inch in diameter and it projects downward from the head of the person from the left frontal region and reaches below the level

of the chin. Some striations appear on it similar to those on the horns of a deer, and it is about the same color.

Human horns do not seem to be extremely rare, as a great many cases have been reported by physicians during the years. They are said to be derived from the cutaneous layers and not connected with the bony parts, as in the case of the lower animals. It is a horny transformation of a warty growth. While some never grow to any extent, others have been known to reach enormous proportions. In some cases there is no recurrence after removal of the first growth, while others have been known to return, in several years, after each operation.

There are *two shrunken human heads*, or tsantsa, in the museum (15, 16, 17), one presented by Dr. Judson Daland, the other by Dr. Thomas Biddle. They were prepared by the Jibaro tribes who occupy the western slopes of the Andes. These Indians from Ecuador and Peru considered the head the most important organ of the body and in ancient times cures for many ailments were attributed to it. So it is not strange that the head was chosen when objects of worship, magic totems to ward off evil or to increase wealth and power, and war trophies were desired.

The entire process of shrinking the head is not known, but it begins with the separation of the scalp and the skin of the face from the skull. The skull is discarded and the parts removed left in boiling water for a while. The reduction is accomplished by rolling hot stones to and fro within the head followed by hot sand which is distributed uniformly by keeping the head in motion. During the treatment the features are molded with the fingers and the head finally blackened with charcoal. Ironically, although the Jibaro head-hunter has obtained a magic object, his triumph is mixed with the fear of dire consequences for killing and mutilating his enemy, and he is considered unclean. To defend his family and himself against the revenge that might be visited upon him by the spirit of his former foe, he must go through a purifying ceremony which lasts two years.

The two heads in the museum are about the size of oranges. The one given by Dr. Daland has short hair and well-defined features, while that given by Dr. Biddle has long hair and features more nearly resembling a small black dog. It is decorated with lengths of cotton string passed through both lips through three holes previously made by wooden pegs.

Dr. Daland obtained the head while in Ecuador in 1930 and tells us that the government of Ecuador does not permit the sale of shrunken heads, nor permit them to leave the country, because sale and export would encourage the killing of men to keep up the supply. On one occasion, a shrunken head with red hair was offered for sale which was evidently that of a European either murdered or killed in battle. There are few in existence and the price runs from $100 to $500. No one knows when this process began but it has been in existence for centuries.

OLD MEDICINE CHESTS AND MEDICINES

Among the half dozen medicine chests in the museum are ones used by Drs. Benjamin Rush, Joseph Hartshorne and J. M. DaCosta. They are all similar in construction, having compartments suited to medicine bottles of various sizes and drawers in which powders were kept, and each is equipped with an apothecary scale, a spoon or measuring beaker and a glass mortar and pestle. Although many of the labels are missing and the majority of the bottles are empty except for a few grains of powder or dried remains of some liquid medicine, enough remains to identify the popular drugs of the eighteenth and early nineteenth centuries. If the patient was not cured of the disease, he must at least have

experienced some change in his condition, being soothed by opiates such as Paregoric, Dover's Powder and Laudanum, being purged by Calomel, Rochelle Salts, Warner's Gout Cordial and Spiced Spirits of Rhubarb, and being stimulated by the best French Brandy, Whiskey, Compound Spirits of Lavendar and Fryer's Balsam. Most of the chests also contained Spirits of Nitre, Brown Mixture, Ginger and drugs having emetic and diaphoretic properties, such as James' Powder and Emetic Tartar. Dr. J. M. DaCosta's chest was the only one that contained a substance labeled "Cholera Mixture."

The only ointments found are in Benjamin Rush's chest. Two of these are labeled "Mercurial Ointment" and "Yellow Brasilicon." A bottle that contains something resembling gunpowder is also in this chest, but was found to be black sand that at one time was brought to Dr. Rush from Lake Superior. It is not known if this was supposed to contain curing properties, but even black sand would have been an easy dose to swallow compared to the roughly powdered beetles in the chest that had been in use since 1790 by Dr. Hartshorne.

After cataloguing the specimens and cleaning the cases periodically, typing labels and the like, one becomes familiar with most of the objects and it is a fairly simple matter to find a certain type of specimen when it is requested. It hardly seems possible that what I am about to relate is true, but it is, and is one of the amusing things that has happened in the museum.

A young man came in one day and asked to see the specimen that showed the effects of severe cold upon the respiratory organs. I was sure no such specimen existed, but to satisfy him and myself I looked through the card file. As I thought, we had nothing like that. I told him so and he was equally insistent that we did, whereupon I asked his source of information. He told me that some years ago a friend had visited the museum and told him of some of the exhibits, and he vaguely recalled that one of them was the chest of some Arctic explorer and he wondered why we would preserve this particular part of his anatomy unless it was for some such study. At once I knew that the chest to which he referred was not anatomical but a surgical chest designed and equipped by Dr. Elisha Kent Kane (19) when he became the surgeon to the two Grinnell Expeditions in search of Sir John Franklin and his party of 136 men lost in the Arctic in 1846. Dr. Kane, surgeon of the first expedition in 1850, and commander of the second expedition, 1853–55, both of which, unhappily, proved unsuccessful so far as their purpose was concerned, wrote two volumes on the adventures and hardships encountered by the officers and crew on the second voyage into the Arctic region. Although the chest is not mentioned in Dr. Kane's book, it most certainly must have served its purpose, for we read because of the extreme cold (temperatures often reaching 80° and 90° below freezing), two of the members of the crew suffered frozen limbs that had to be amputated. It is not known what other instruments may have been used, but all the essential ones were there when needed, packed in the polished case, cleverly arranged so as to conserve space.

The error on the part of the visitor was not due to stupidity but rather to lack of sufficient information. He seemed to think the history of the chest was as interesting as an anatomical one would have been, and he straightway went to the library to find the volumes.

OLD MEDICAL PRESCRIPTIONS

The museum possesses two ancient medical tablets. One is a copy of a *Sumerian tablet* unearthed more than fifty years ago by the University of Pennsylvania Museum at Nippur, Iraq, and now in its possession. In 1953, translation of the tablet was completed as far as possible by Samuel Noah

Kramer, internationally known cuneiformist, and Dr. Martin Levey, a chemist at Pennsylvania State College.

It measures 3¾ by 6¼ inches. The prescriptions, the preparation of, and instructions for taking, were written by an unknown Sumerian physician in Sumerian script, which is thought to be the world's earliest written language. The animal kingdom produced the following for man's use: milk, snake skins and turtle shells, but plants such as cassia, myrtle, asafetida and thyme, and trees such as willow, pear, fig and date produced most of the medicines. Seeds, roots, branches, bark and gum from trees were pounded into powdered form for use, and to make them more palatable, medicines were taken with beer. Dr. Kramer and Dr. Levy found it "startling that the early document, the oldest 'page' in medical history as yet uncovered, is completely free from mystic and irrational elements which dominated Babylonian medicine in later years." It was also a disappointment that the text failed to name the disease for which the medicines were taken.

The *Assyrian medical tablet* (4q) was given to the museum by Drs. S. Weir Mitchell and Richard H. Harte. Made of red clay, it measures about 3¾ by 5¾ inches and dates to the seventh century B.C. It was found at Kaleh-Shergat, the site of Ashur, the ancient capital of Syria. Mr. Morris Jastrow, Jr., translated both sides of the tablet. It is broken in places, and were it not for the fact that it was found to contain extracts from a series of medical prescriptions copied from two of the tablets published in the *British Museum Series of Cuneiform Texts*, much of it could not have been read. The Assyrian tablet is said to be unique in that it has a colophon, establishing it as the private possession of an individual, possibly a priest or physician, who copied or had copied, from a long line of medical prescriptions and magic rites, those that he considered to be most effective. All treatments were applied to the head, since that part of the anatomy was thought to be possessed of a demon who caused all bodily ills. Cures were thought to be effected by either driving or coaxing out the demon, by application of salves and ointments together with magic and incantations. This belief checked any attempt to diagnose a case scientifically.

In 1925, Dr. Casey C. Wood was busily engaged in Srinagar, Kashmir, collecting for McGill University the medical and surgical material used by the medieval Vederalas or native doctors. The material that Dr. Wood gave us consists of two manuscripts or *ola, written in Sinhalese* on the prepared leaves of the talipot palm, two daggers and seven styli with which the writing was done.

According to Dr. Wood's information, the largest ola is the Yogaratnakara, one of the standard works on medicine written in Sinhalese verse, and in which the disease now identified with yaws of the West Indies is first mentioned. Written about 1750, it is a copy of the famous work on Sinhalese medicine originally compiled several centuries before. It contains approximately 450 leaves, each eight inches long and one inch wide. The painted wooden covers and the medallion are old, but the binding cord is modern after an early type of native artist. The ola written in 1650 is smaller, containing only fifty-nine leaves, with prescriptions in verse for children's diseases.

A smaller ola, also from India, was presented to the museum by Dr. Fred B. Rogers.

The styli are of copper and do not differ materially, except for the two described as "monastic," which are longer and have flat handles with one cutting edge for cutting the palm leaves. It is said that to insure proper balance in the hand, proportions of the stylus were regulated by a Sanskrit verse.

The Ceylonese stylus was called a "panhinder," and when the scribe wrote in the

ola with it, the lower part rested in a notch in his left thumbnail. They were made of iron as well as copper and were damascened with silver or gold. The styli of some monks, noblemen and kings were of silver or gold, and a gold stylus or "ran-panhinder" was bestowed by the king on the treasurer or accountant as a badge of office. Even kings and noblemen practiced the profession, as medicine was one of the sciences they could study and practice without losing caste.

We have had many foreign students in the College, but so far none of them has been able to translate the prescriptions, although the leaves are in excellent condition and the writing clearly legible.

Japanese medicine, both ancient and modern, is represented in the museum. Massage was practiced as early as 600 B.C. in Japan, and several types of muscle beaters used for that purpose are in the collection. One type consists of a slender stick about twelve inches long, stuck through one or more rubber balls. Another type is made up of three rubber rods attached to a short strong handle.

Among the Japanese instruments is a curved steel knife terminating in a probe. This was used occasionally for anal fistulae, but more frequently for fistulae resulting from scrofula or other inflammation of the neck or groin. Dr. William W. Keen, the donor, described it as very much resembling the "syringotome" or probe used by Dr. Thomas T. Hewson. Other instruments are a metal spiral catheter entirely of Japanese design, a blow pipe, a lancet and a spatula. A medicine scoop is one of six brass spoons of various sizes for dispensing drugs. A unique pill counter represents an ingenious method of counting pellets for dispensing: after dipping into a mass of pellets, a slight shake will displace all except the twenty-five which are held in place in little indentations in the small brass square.

Acupuncture needles form a part of the Japanese exhibit, for although acupuncture originated in China, it was practiced in Japan as early as 600 B.C. It was used for the purpose of counter-irritation in cases of pain and inflammation. The needles were inserted with a twisting motion and left for several days. A short note on anatomy entitled *Kotsu-Do-Seigo-Zusetea*, published in Japan in 1726, and an accompanying human figure measuring 2 feet, on which hundreds of places are marked for the insertion of needles, were used as guides for acupuncture, moxa and massage.

Medicine in modern Japan is represented by a collection of medical supplies captured in the Burma Campaign in World War II and presented by Dr. I. S. Ravdin. It consists of antimalarial drugs, disinfectants, antiseptics, germicides, heart stimulants, emetics and purgatives.

Here might be mentioned two *Japanese honorary swords* (4-o) in the museum collection. These were carried by physicians in old Japan as a special honor, granted because of the high esteem in which the medical profession was held. This was indeed a mark of respect when one considers how far removed were the physicians in the elaborate feudal system that existed in Japan several hundred years age from the nobility and military classes who were the only ones allowed the honor of wearing swords.

One of these swords was purchased in Tokyo by Dr. Charles D. Hart and presented to the museum in 1896. It was as unusual to be able to buy one of these, Dr. Hart explained, as to purchase a Congressional Medal of Honor. The "sword" has no blade and is really an imitation one, merely a solid piece of highly polished wood about eighteen inches long, two inches wide and one inch thick. The wood resembles mahogany but on consulting a cabinetmaker we learned that the wood is from another tree common in China and Japan. The wood is slightly bowed and an oni, the

Japanese devil known as Bunshosei, the flying demon emblematic of the written thought, is carved on one end. On the opposite end is carved a tortoise, Monogame, one of the four animals in Chinese mythology which is emblematic of longevity. There is a small ring projecting from the concave side and some distance along a hole has been made through the wood. These were evidently used to hold the cord that fastened the sword to the belt of the wearer.

The other honorary sword came to us from Dr. Horatio C. Wood. Correspondence with the Wood family has failed to elicit any more information than appears in our catalogue, but that description put a slightly different interpretation on this ornamental piece of Japanese handicraft. This label reads, "Japanese curio, now rare, was assumed by the former Japanese doctor on taking his profession, and worn in his belt to show that he belonged to the sword-bearing or Samurai class by entering the medical profession, and became a non-combatant." This differs somewhat in appearance from the one given to us by Dr. Hart. It is a piece of wood cut from the center of a small tree limb, on which the bark still remains. The whole is lacquered and is ornamented with inlaid leaves and berries of ivory which have been tinted. A Japanese inscription is cut into one side, below which a small piece of mother-of-pearl is inlaid.

Although the two swords differ in appearance there seems to be no doubt that they were used for a similar purpose.

The museum has one small lacquered box containing *drugs from China*, each wrapped in its separate paper with the identity in Chinese characters written on each. One day Miss Garner, assistant to the curator, who had studied a little Mandarin, and a Chinese medical student from Jefferson Medical College who could read a little Cantonese, together were able to identify the contents of five of the little folders. They found that the Chinese, like other early doctors, also depended on nature for many of their remedies, for the papers were found to contain bits of leaves, flowers and bark.

Mortars and pestles have been the symbol of pharmacy since its earliest beginning, and it is said that from medieval times to the nineteenth century they were commonly made of bronze. However, we find them also made of glass, wood, iron, marble or stone. The small glass ones were usually part of the equipment found in all doctor's medicine chests. Another small one in the museum is a souvenir given at a leave-taking dinner in honor of Dr. William Osler by members of the medical profession on May 2, 1905.

A very large shallow one of stone has been in the museum for many years, but unfortunately we know nothing about it or for what purpose it was used.

We are indebted to the late Dr. Edward B. Krumbhaar for two very interesting wooden ones. One of these dates back to the eighteenth century. It is barrel-shaped with a pestle that has seen much use. The mortar is about 8¼ inches high and 5½ inches in diameter. Its only decoration is four lines etched around it and two rings that are carved at the base. This was obtained in Concord, Massachusetts, and is thought to have been both of local manufacture and use. The second was turned from a beautifully grained wood. We do not know the type, but most wooden pharmaceutical vessels were made of boxwood or linden wood. Whatever it is, both mortar and pestle are extremely heavy, and it occurs to one that the 12-inch pestle would make an excellent shillelagh if one were attacked some dark night in a questionable neighborhood. This is smaller than the one previously mentioned and resembles those most commonly seen in establishments that still remain purely pharmaceutical. It came from England where it was formerly used in chemical

experiments by Dr. Conyers Middleton (1683-1750), a noted divine, critic, learned author and librarian at the University of Cambridge. He was an erudite author in a variety of fields and wrote the first book on the invention of printing.

An antique bronze mortar and pestle inscribed with the Middle German motto and date of casting, "*lof Godt Van Al – Anno 1601*," was given to us by Dr. Fred B. Rogers.

A small mortar and pestle from Tyrol, Austria, dated 1750, was presented by Dr. J. Monroe Thorington and completes the collection.

NOSTRUMS

The Mütter Museum Collection is not without its nostrums, Dr. Oscar V. Batson, a former chairman of the Mütter Museum Committee, through Dr. Edward B. Krumbhaar, a former president of the College, presented a cure for all ills, namely, "The Quassia Cup—Nature's Remedy." This footed cup, made from the wood of a tropical tree of South America, is about 4 inches high and quite an attractively designed receptacle. It gets its name "Quassia" from Quassi, a Negro from Dutch Guiana, who, about 1730, used the bark of the trees as a remedy for fever. He was reputed to have cured malignant diseases with the cups, but he kept its curative power a secret until 1756 when he was persuaded to make it known. In using the cup, water was poured into it and became impregnated with the medicinal properties of the wood. Chemical analysis found it to contain volatile oils, gummy extractives, pectin, oxalate and tartar salts, nitrate of potassium and nitrate of soda. The patient drank the water at prescribed intervals and was supposed to be cured of at least twenty-seven listed diseases, from indigestion and drunkenness, to heart, liver and kidney ailments. The circular that came with the cup imparts the information that it was distributed by J. H. Hartwell of Springfield, Ohio, and that mail orders would be filled on receipt of one dollar. The bitter water obtained from the cup was said to contain the medicinal virtues of nearly all medicinal waters on the market, so it was an economical investment since all could be procured for one price. Users were directed to sandpaper the cup when it failed to impart the bitter taste as soon as desired.

The cup was held in high repute by the English *Materia Medica* and *American Dispensary*, the former stating that "no article of Materia Medica has borne so high and unwavering a reputation." While today we rightly doubt the cures ascribed to the Quassia Cup, who can say that in some instances its properties could not have effected some relief, for have not many minor ills, before and since, been relieved by mere "sugar pills?"

While no record shows that Quassi was "ostracized" because of his remedy, Dr. Elisha Perkins of Norwich, Connecticut was not so fortunate (20). About 1795 there appeared in medical circles a new cure for many diseases which was known as Metallic Tractors. These, now obsolete, were a form of metallotherapy invented by Dr. Elisha Perkins. This invention grew from an observation by Dr. Perkins while performing operations. He noticed that when the point of a metallic instrument came in contact with a muscle, the muscle contracted, and in some cases the pain ceased, although wood and other non-metallic substances had no such effect. He therefore proceeded to experiment with nail-like metallic instruments of his own invention and submitted cases to prove miraculous cures by drawing the points of the tractors over the skin of the patient. His discovery was received with little enthusiasm and much skepticism by the Connecticut Medical Society of which he was a Fellow, and everything was done by its doubting members to discredit the invention and its inventor, calling it a revival of mesmerism

and charging Dr. Perkins with obtaining a patent for the exclusive privilege of using and selling the instruments which was contrary to the rules of the Society that prohibited the members the "use of nostrums."

Dr. Perkins came to Philadelphia to advertise the tractors, and many reputable persons, including George Washington who was then president, became converts to the new cure and purchased sets of tractors for their own use. Dr. Perkins' son, Benjamin Douglas Perkins, established himself in London for the same purpose, and eventually their use spread to many European countries where they were also credited with many cures.

While *Dr. Macaura's Blood Circulator* (21) is not exactly a nostrum, the extravagant claims for it in its accompanying booklet made it unique. This vibrator and massage apparatus was invented by Dr. C. J. Macaura, an American physician, but was manufactured by the British Appliance Manufacturing Company of Great Britain, probably during the late 1900s. The idea is not new, for massage played a prominent part in the relief of pain for ages. Hippocrates advocated its use and, as mentioned before, the Japanese practiced massage as far back as 600 B.C. Convinced that all pain is caused by congestion and that circulation is a permanent cure, Dr. Macaura claimed that the use of his appliance cured everything but cancer, baldness, consumption in its advanced stages and certain cases of blindness and skin diseases.

Electrically operated hand vibrators that appeared some years ago closely resemble this one which is operated manually. Easy to use, the crank is turned at the rate of 50 or 70 revolutions per minute, causing the rubber disc on the end to vibrate against the affected part. The machine is said to be more effective than the ministrations of an expert masseur whose manipulations can reach a speed of only about 400 taps per minute, while the blood circulator administers 2,000 to 6,000 taps in the same time. Since massage machines for the treatment of obesity, nervousness and other ills have recently appeared on the market, it is thought that the simple invention of Dr. Macaura, with the little booklet claiming such marvelous cures, might be of interest. The claims of these more modern inventions may also be somewhat exaggerated, and they too, some day, may be interesting museum exhibits.

The attempt of people to allay pain and cure diseases not only in themselves but also in their livestock is illustrated in the many crude iron votive offerings in the form of cattle. These particular iron ones are the *votive offerings of St. Leonard*, the protector of livestock and healer of bodily ills (12-b). These figures, after being blessed at the altar of the church, were buried near the stalls of cattle to ward off the plague. Since the World War I when the custom declined, these were sometimes buried in the church or sold as antiques.

One of the iron votives is the model of a large and heavy arm and hand. According to Dr. J. Monroe Thorington, who gave us most of the votive items, "the value of the votive in olden times is largely based on weight, so this chap must have had a very sore arm."

A number of votives in the form of human organs are also in the museum collection. Being too complex to model in iron, they were made of wax which was favored also because they could be melted down into church candles. Silver votives from Switzerland and Cuba were donated by Dr. Thorington and Dr. Burton Chance. A number of plaster figures of the Madonna from Einsiedlen, Switzerland, made about 1750 to 1800, have medical significance. Plaster was scraped from the figures and swallowed for various illnesses.

Amulets and charms played a part psychologically in primitive medicine and belief in them persisted not only among

primitive races but also among more enlightened people. Fertility and virility charms of about 1750 were presented by Dr. Thorington together with a Maori "Tiki" good luck charm of carved wood from New Zealand.

INSTRUMENTS

Almost every type of old surgical instrument once used by members of the medical profession may be found in the museum. Some have not changed in construction during the years; others are obsolete. The oldest ones exhibited are excellent reproductions of those excavated in the ruins of Pompeii (A.D. 79) in 1818. These were made by an artisan from Naples whom we know only by the name of Angelo. He was celebrated for the excellence of his work in reproducing objects of this kind for museums.

The majority of these instruments was presented by Dr. Joseph Leidy, a few by Dr. Judson Daland. They consist of a catheter, a trocar and cannula, an obstetrical perforator, phlebotomy lancets, small forceps, an elevator, a combined sound and curette, and anal, uterine and vaginal specula. The uterine speculum is large, heavy and ornate, but the vaginal speculum, while complicated, is said to be one of the safest and most perfect trivalve specula invented. It is indeed surprising how many of these instruments in use before A.D. 79 differ so little in design from those in modern use. The originals of this collection are in the National Museum at Naples.

An Etruscan necklace, not a reproduction, excavated at the site of ancient Etruria, shares a case with the Pompeian relics. This is phallic in nature and appearance and represents the art of that ancient country which is supposed to have developed independently from the same root as that of ancient Greece.

The next oldest in date is a collection of *Roman surgical instruments* (24) taken from the Tiber River by workmen who were dredging in order to lay pilings for a new bridge. They were offered for sale and after being authenticated by Dr. Kenneth Matthews of the University of Pennsylvania Museum, the Mütter Museum purchased them. There are nineteen instruments, all in excellent condition. They consist of probes, spatula and tweezers, but many serve dual purposes. A probe with an oval or rounded end could be used also as a sound or dilator. When it ended in a very sharp point, the probe became a domestic instrument to remove shellfish from the shell. On the opposite end of a probe there may be a spatula, spoon, scoop or curette. The spatula could be used as a tongue depressor or to apply salves or ointments. These double instruments when used as surgical tools were called specilla, but when used, as they often were, as toilet articles by the ladies of Rome to extract beauty oils, ointments and powders, they were called ligulae. It is said that these were found in great numbers and so resembled surgical specilla used by physicians that it is difficult to separate the two. This collection dates to the second century.

The *sixteenth-century instruments* dating to the time of Ambroise Paré were presented to the museum by Dr. Joseph Pancoast. They are all very ornate, and all but a speculum for the mouth are types of trephines.

The simpler of the trephine instruments is one that is known as a hand trephine, and it is in the shape of a capital "T." The cutting edge tapers, being smaller at the teeth and greater on the upper part. The cutting edge is on the outside. Both ends of the handle, which form the top of the "T," are so constructed that they may be used as elevators to lift out depressed bone. Another in the shape of a brace and bit was used to remove small portions of bone when only the upper portion of the skull was damaged.

The large, heavy and very elaborate trephine with several types of knives avail-

able is said to have needed two persons in its operation, one to hold the victim and the other to manipulate the instrument. Just why two persons were necessary to use this particular one is hard to explain, since it would seem that the pain of these operations would be sufficient to make more than persuasion necessary to hold the patient until completed.

The speculum oris, invented during the time of Ambroise Paré, was intended to be placed in the mouth during convulsions. A screw arrangement separates or draws together two metal plates, which, put between the teeth, prevented the patient from biting his tongue. It also kept the mouth open so that drugs could be administered.

The elaborate design of these instruments would seem to indicate that the inventors took as much pride in their appearance as they did in their efficiency.

We have almost one hundred *obstetrical forceps*, besides other obstetrical instruments, that look almost like instruments of torture. Some confusion arises when one studies the history of the invention of obstetrical forceps by the Chamberlens (22) because of the given names, for there were four Peters and two Hughs in the family. The forceps were invented in 1601 by two brothers, Peter the older and Peter the younger, sons of William Chambellan, a Huguenot physician, who in 1569 fled from Paris with his family to avoid persecution, and settled in London. The name of Chambellan was then changed to Chamberlaine, and eventually to Chamberlen. The invention was kept a secret for many years until Hugh Chamberlen, Sr., son of Dr. Peter Chamberlen, while practicing in Amsterdam in 1693, sold the secret to Roger Roonhuysen, who in turn monopolized the use of the forceps in Amsterdam for sixty years. In 1818 the four original Chamberlen forceps were found in a chest in Woodham Mortimer Hall, former home of the son of Peter the younger, Dr. Peter Chamberlen who died in 1683. These were turned over to the Royal Medical and Chirurgical Society of London. Replicas of these four obstetrical forceps may be found in our collection, together with other types in use during the years from 1601 to 1900. Thirty-six are identified, bearing such names as Baudelocque, Busch, Smellie, Levert and Hodge. Three axis-traction forceps are represented by those of Hermann (1840), Tarnier (1877) and Milne-Murray (1891). Twenty-one remain unidentified and are probably modifications of some of the well-known types; a few are duplicates. It was thought that our collection was quite large but we know that it is comparatively small, since there are supposed to be five hundred or more different types.

The ancient practice of phlebotomy extended well into the nineteenth century, which is proven by the many *lancets, scarificators and cupping glasses* that have been presented to the museum by physicians who at one time used them. Primitive man used sharp thorns for bloodletting, while the American Indians inserted a bit of sharp stone or flint into the end of a stick, driving it into the vein by gentle hammer blows. Horns of cows and bison were used as cups. In early colonial days there was hardly a disease for which phlebotomy was not used and the treatment was not considered effective until the patient became unconscious. Bleeding was done much too frequently, but in the fourteenth and fifteenth centuries, when physicians were governed a great deal by astrology, bleeding was done only when the planets were favorable. We have the replica of a very old cup used about A.D. 200. This was previously mentioned as being discovered in the ruins of Pompeii.

The first bleeding instruments in America used by the white man are the small steel lancets with movable protective plates of shell. No doctor's pocket case was complete without them. Later came the "schnapper" invented by a German sur-

geon. It is also called a spring lancet. This is a small oblong instrument with one short blade operated by a spring and is most effective. The Museum collection includes many of these. Scarificators are the most perfect of the phlebotomy instruments and usually form a part of a cupping set, which also contains a spirit lamp and cups of brass or glass. The shape is either square, oblong or round and they are made of brass or silver with the number of small hidden blades ranging from six to twelve. A spring sets the blades and a trigger releases them. After the cuts were made, heat was applied to the cup and it was placed over the scarification to draw off the blood. These appeared in England in the late seventeenth century and were largely improved by American inventors. The glass cups were rare and were often handed down as heirlooms.

A large crude lancet with two blades and brass protective plates in the museum was identified as a "fleam—a veterinary bleeding lancet". Therefore we were surprised to see this identical instrument pictured in a recent publication with the information that it was found in a desk drawer in George Washington's home in Alexandria, Virginia, in 1932 with Washington's name upon it and that it might have been the instrument used to bleed our first president during his last illness in 1799 when he was bled four times. So much blood was taken that some biographers considered it little less than murder. Fleams were also made with three blades, and one of these was recently given to us by Dr. Robert C. Friedmann.

The museum has many *microscopes* presented by different individuals. These arranged together make a rather extensive collection. We have accumulated thirty, twenty-eight of which are on display, arranged as far as possible in chronological order. Outstanding is the facsimile of the original Leeuwenhoek microscope, the original of which is in the possession of the University of Utrecht. It is mechanically rough and consists of two metal plates with minute apertures through which the objects are directly seen through simple biconvex lenses which are between the two plates. The object to be studied is held on the point of a small rod in front of the lens, and there is a screw arrangement for adjustment.

Anthony Leeuwenhoek, born in Delft, Holland, in 1632, had no university training (29). He was sent to school to study for government work but left there at the age of sixteen to work as an assistant in a dry goods store in Amsterdam, where he remained for six years and where he advanced to cashier and bookkeeper. For many years little is heard of him except that he was appointed chamberlain to the sheriffs of Delft, a glorified name, it seems, for a janitor at City Hall. This position he held for thirty-nine years with much of his time spent in polishing the lenses for his many microscopes and even making the frames himself. DeGraaf, discoverer of the Graafian follicle of the ovary, realized the importance of Leeuwenhoek's work and invited him to acquaint the Royal Society of London with his observations. This he did, writing the first letter in 1673 and in the next fifty years sending two hundred letters. In 1680 he described the first microscopic observation ever made on the yeast in beer, and gave the first true account of the structure of the optic nerve. He was also the first to use the microscope in a medico-legal inquiry.

The next oldest microscope in the collection is the Culpeper-Scarlet type used about 1750.

Many people lose sight of the fact that Oliver Wendell Holmes was a physician as well as a writer, and so are surprised to see his microscope on the shelves. This was used in his classes from 1847 to 1871 and modifications of it were still being made in 1888. Illumination was furnished by an oil lamp. A light iron frame is supported on a

wooden base by a wooden column which also serves as a handle by which the instrument was passed around in the classroom. It was also considered an excellent and practical stand for table use.

Before Rene-Theophile-Hyacinthe Laennec (28) invented *the stethoscope* in 1819, chest sounds had been found by percussion, which an Austrian by the name of Auenbrugger used as a means of diagnosis. He probably learned the technic from tapping the wine barrels in his father's inn. He found that one got different sounds by striking different areas of the chest wall and placing his hand over the spot. Had he used his ear he might have been the one to have invented the stethoscope. Among our sixty-two stethoscopes is one made and used by Laennec. It is a long, divided wooden cylinder which he later improved by shortening it. It is said that he got the idea from seeing children playing on a log. While some of them tapped on one end of the log, the others would listen at the other end and get the magnified sound. He put this into practice when he was called upon to treat a young woman with general symptoms of heart disease. As the degree of fat in the woman made it impossible to use percussion, and modesty prevented him from listening with his ear to her chest, he quickly rolled a quire of paper into a cylinder and applied one end to her chest while he listened to the magnified sound at the other.

A modification of Laennec's stethoscope was made by Charles T. Haden who introduced it into England, and from the Laennec instrument also evolved the vase-like monaural stethoscope made of wood, metal, ivory or hard rubber, varying in length and style of flare. These continued to be used for many years and are still in use in some foreign countries. While they were efficient, they were designed not for any particular acoustic advantage but to fit tightly into the top hat so universally worn by physicians of the day. Pierre-Adolphe Piorry had a pleximeter, which he invented in 1826, attached to his stethoscope, and this innovation was followed by other designers. Some models were made demountable for convenient carrying. One in the museum, planned for even further efficiency, has a folding ear-piece and a clinical thermometer fitted into the tube.

The flexible monaural stethoscope consists of a simple speaking tube used by the deaf, which William Stroud in 1832 adapted to auscultation. The binaural instrument was invented by Dr. George P. Cammann of New York in 1855, one of which is in the museum. A differential stethoscope invented by Somerville Scott Alison in 1858 is also part of the collection. In 1885 Charles Dennison devised a binaural stethoscope with four sizes of bells. The small stationary one is large enough for detecting valvular lesions and for auscultation with infants. The middle-sized bell was for general use. A soft rubber bell fitting into the medium-sized one, was used successfully in emaciated consumptive patients, and the large hard rubber bell was constructed for stethoscopic percussion.

The collection also contains a phonendoscope, a binaural stethoscope used by Dr. William Osler, a stethoscope used during World War I to detect submarines, a Kerr Symballophone (a modified stethoscope for lateralization of sound), and an electric stethoscope called a Stethetron.

About twenty-seven years ago the museum storeroom received a thorough house cleaning. It held a conglomeration of assorted jars, orthopedic apparatus, bones and old instruments. Many had probably been put there because duplicates already graced the shelves of the museum, but here and there gathering dust in odd corners were several instruments that were unfamiliar to an inexperienced clerk. Dr. Joseph McFarland, who was then curator, identified them as sphygmographs which we then placed upon exhibit.

Sphygmographs are the first clinical instruments by which graphic methods of registering the arterial pulse could produce confirmation of a diagnosis on a living person. One of the first was invented by Etienne Jules Marey, a French physiologist, in 1860. The record is made upon a piece of paper covered with soot. The paper is mounted on a carrier that is slowly moved along a track by clock work, and the delicate scratching of the stylus produces a record upon the blackened surface, which is later fixed with shellac. Two modifications of this by Dudgeon and Jacquet appeared in 1890, both of which are in the museum. Dudgeon substituted a light compound lever and gravity action pen for Marey's simple lever and side-writing pen. The shorter and lighter pen arm had a higher vibration frequency for the same magnification, and the instrument could be used with equal facility no matter what the position of the patient.

We also have several of Richardson's sphygmographs and one invented by Erasmus Pond, which was erroneously labeled a "stethoscope" until correctly identified about twenty-three years ago by the late Major Harry Davis of the Army Medical Museum in Washington, D.C., and Dr. Paul Reichert of New York. We might also mention here the sphygmomanometer used for measuring the elasticity of the arterial walls and the sphygmotonograph for recording simultaneously the blood pressure, the carotid or jugular pulse, the brachial pulse and the time in fifths of a second. McKenzie's Ink Polygraph, which makes simultaneous tracings on the same recording surface of any two of the arterial pulse, the jugular pulse, the apex beat and the respiratory movements, shares space with the sphygmographs.

Gifts of *ophthalmoscopes* form a collection of forty-four. Some are duplicates and four are unidentified, but those remaining represent twenty-one different kinds.

The ophthalmoscope was invented by Hermann von Helmholtz in 1851, when he was professor of physiology and general pathology in the University of Königsberg. He took no great credit for the invention, although it was his ability to apply the law of reciprocity of the rays of light that resulted in the discovery. He knew that if he could throw sufficient light into the eye, enough would be returned to enable him to see the background of the eye. It took him only two days to construct his first instrument, and it proved such a powerful means of ophthalmological research that it was taken up by Graefe of Berlin and Jaeger of Vienna. A modified Helmholtz of 1851 is the oldest instrument in this collection.

Other physicians designed instruments to their own specifications. Dr. Hermann Knapp of New York, who was a pupil of Helmholtz and worked with him for eight years, devised one that bears his name. The Loring ophthalmoscope was designed by Edward G. Loring, surgeon to the Manhattan Eye and Ear Hospital in Long Island. This is a simple instrument with detachable cylinders pierced for glasses of different focal value.

One rather unusual instrument is believed to be a modification of one invented by Lionel Beale in 1860. Dr. Burton Chance who presented it describes it thus: "The reflector and lens are enclosed in a tube, to the side of which is adapted a small paraffin lamp with a large plano-convex lens. The illumination is so strong that it is not necessary for the tube to fit accurately to the margin of the orbit. The reflector is fixed in the tube at the proper angle and the lens is made to incline a little so as to remove the reflections upon the retina from the field of vision. With this instrument the optic disc is brought into view without any difficulty, and as the lamp moves with the mirror and lens, inexperienced persons can use the apparatus almost upon the first trial."

The development of the hypodermic syringe is ably illustrated in the twenty-

nine instruments in the museum. Inoculation had been used only for introducing smallpox virus until 1836 when Lafargue, a French surgeon, used this method for the relief of pain, by packing morphine into a previously made incision. In 1839 the Anel syringe, said to be the real progenitor of the leather piston syringe and intended for the lacrimal passages, was used for the first time for a morphine solution by Drs. Taylor and Washington of New York. Although Dr. Alexander Wood, a Scotchman, is often credited with the invention of the hypodermic syringe, it was an Irish surgeon, Francis Rynd, in 1845 who first introduced fluids for pain relief with an instrument of his own invention at the Meath Hospital in Dublin.

Until Charles Pravaz, in 1853, devised an instrument with separate perforating needles, the contents of the syringe were injected through a cannula into an incision made with a lancet.

In 1856, George Tiemann & Company of Philadelphia produced the first hypodermic syringes made in the United States, copying a Ferguson syringe brought from Edinburgh by Dr. Fordyce Barker. We have one of the first six of these. In 1895 glass barrels with graduating scales and metal or glass pistons replaced the hard rubber or metal barrels with leather pistons.

In 1811, the manufacture of tablets for hypodermic use, which were easily soluble in water, lessened the danger of abscesses, inflammation and cysts that often resulted because of the decomposition of the drugs that could not be carried safely and conveniently. An interesting set in the museum contains six small vials of these pellets, most of them still intact and probably quite potent.

Charles Hunter, in 1853, demonstrated that injections in other parts of the body than the painful area, were just as satisfactory. It was also he who proposed the name "hypodermic."

The collection of clinical thermometers is comparatively small and dates back to about 1850. This instrument was invented by Galileo (12c) between 1593 and 1597 and was called a thermoscope. It consisted of a glass tube open at one end with a bulb at the other. After the bulb was warmed, the open end of the tube was immersed in water, and as the bulb cooled the water rose in the tube. Then heat applied to the bulb caused the water to descend. Galileo later substituted wine for water, since water on freezing broke the bulb. Giovanni Francesco Sagredo, a Venetian nobleman, improved Galileo's invention in 1613 by sealing the end and dividing the tube into one hundred divisions. In 1646 Grand Duke Ferdinand replaced the wine with colored alcohol which, however, proved unsatisfactory because the coloring matter caused a deposit which made reading difficult.

The oldest thermometer in the museum collection is of French manufacture, dated 1850. Thermometers of this type were unsuited to the taking of human temperatures because they were about a foot long, took several minutes to register and had to be carried in a holster. The several thermometers of the Civil War period do not have the scale etched on the glass, but have it attached to it. The register range is perpendicular and the portion to be introduced under the tongue is bent at an angle. On one thermometer manufactured by Tiemann & Company in 1885, the graduations denote only the degrees above and below normal. The thermometer was first used in the diagnosis of fever by Sanctorius in 1611. It was first used for this purpose in America by Dr. Billings in 1862. Dr. Aiken of Netley Abbey Military Hospital, England, is credited by some with the invention of the pocket thermometer in 1864, while others give credit to Sir Clifford Allbut in 1867 or 1868.

One of the newer collections in the museum is that of *hearing aids*. While for many years we have had Adam Politzer's

collection of tympanic membranes, the J. S. Fraser and Alexander Randall collection of lantern slides of the normal and pathological anatomy of the ear, and numerous instruments used in the examination and treatment of the ear, it was not until 1941 that we received our first hearing aid. The late Dr. Douglas MacFarlan is responsible for starting this collection, and we are indebted to him for interesting Mr. Anthony P. Mynders, a member of the Board of Governors of the Hearing Foundation, in the collection. He kindly augmented the exhibit by many of the newer types, and is still planning to bring the collection up to date.

The rapid growth and development of these aids may be traced from the ear trumpet of antiquity to the modern ornamental earrings and spectacles equipped with aids. Among the older types is the London Hearing Dome. Of all ear trumpets this is said to have had the longest, most popular and successful career. Other devices that may be seen are the "artificial hand," a shell-like arrangement that was put on the market in 1900, carbon hearing instruments of American, English, French and German manufacture, and the first rather cumbersome battery set.

An aid that the museum has not been able to acquire is a hearing fan or Audiophone.

In 1930, Mrs. Horace J. Williams presented an instrument called a Monochord, used in making a complete functional test of hearing. Dr. Douglas Macfarlan told us that it is no longer used, but that it was a very useful instrument, showing phenomenal efficiency of hearing by bone-conduction for high tones, a functional test not possible with other sound testing apparatus. The Monochord was invented about 1900 by Dr. R. J. L. Struycken of Breda, Holland, who demonstrated it at the International Otological Congress in Budapest. It consists of a 15-inch flat metal bar on which scales are marked. On this a steel wire with adjustable set-screws is strung to definite tension. This tension is accurately measured by a thin flat piece of steel called a tension controller. The metal button of the instrument is placed on the mastoid or other bone and the tone is brought forth by striking the wire with the automatically moistened disc which is attached to a rubber flask filled with turpentine or benzene. A metal sliding block attached to both wire and bar may be moved back and forth, shortening or lengthening the wire, thus making the vibrating tone either higher or lower. Professor Karl L. Schaefer of Berlin modified Struycken's instrument to produce tones of transverse vibrations as well as longitudinal. These were produced by striking the wire with a wedge-shaped hammer, or for higher transverse tones, drawing a short violin bow across it. The failure of some American otologists to use the Monochord after purchasing it was due to the fact that they could not understand the description which was originally published only in Dutch and German. For this reason Dr. Max A. Goldstein of St. Louis, Missouri, four years after its invention, wrote an article describing it and its use (23).

We do not know whether the Guttman Audiometer (the first vacuum tube audiometer) was widely distributed among otologists or not, but we have had many inquiries about it at different times and also requests for photographs. The inventor's own instrument was given to us by Dr. Douglas Macfarlan in 1943. In 1921 Dr. John Guttman of New York read a paper before the Section on Otology of the New York Academy of Medicine, in which he described an "electric acumeter," which is the father of the modern audiometer. In 1922 he published his audiograms of studies in different types of deafness. This audiometer, testing hearing quantitatively for any pitch, produces its tones by beat frequency oscillation first discovered by Tyndall in 1876. A fixed frequency is gener-

ated in one of the vacuum tubes and against this impinges an oscillation or frequency capable of being varied. The interference of the two waves sets up a third wave, the beat tone. The use of this tone and this method gives the opportunity to make and select any pitch. The intensity is separately controlled and the sound is put out and recorded by the person being examined for ear phones.

The museum *collection of dental instruments* (27) is small but very interesting. There are three old extraction instruments used by a ship's surgeon in 1818 when on a long sea voyage. Two are ordinary forceps similar to those in use today, but the third is the ancient dental key or turn-key. This was first mentioned in 1757 by Etienne Bourdet and obviously is the outgrowth of the old pelican that first appeared in 1363, and which got its name from the resemblance of its claw to the beak of the pelican. The key was called variously the French key, the English key and Garengeot's key, although Garengeot had nothing to do with its invention. The inventor is not known but many modifications of it appeared.

The metal shaft of these instruments is about 5 inches long, some straight and some bent at an angle. A wooden handle is attached to one end at right angles, and at the other end the claw to fit over the tooth is fastened to a metal projection and acts as a fulcrum. The sharp points of the claw are forced down in the back on the neck of the tooth and held in place with the finger, the fulcrum resting on the gum. A turn on the handle made the claw grip the tooth tightly and it was forced out. About 1860 forceps were devised to extract a tooth in a perpendicular direction rather than horizontally. This was a definite improvement as the horizontal extraction often damaged the adjoining tooth or the alveoli.

A set of small dental instruments packed in a small box was sold by dentists to their patients for $1.25 to encourage better care of the teeth at home. The box contained an introducer, which as the name implies, introduced metal fillings into the cavity of the tooth, a planatorium used to press the fillings close to the sides of the cavity, a perforator with which to make holes in the metal which were then filled with lead, and a file to smooth any rough places. Elevators to remove roots when cavities had so far advanced that a firm hold for the forceps no longer existed, and scrapers for removing tartar from the teeth were also part of the equipment. George Washington took advantage of this aid to health and purchased two sets, one for his own and family use and the other for his slaves.

In 1945, Dr. Joseph McFarland, a former curator of the Mütter Museum, wrote an interesting and amusing article on one of the museum specimens which he chose to call "that infernal machine" because it stood in a prominent place in an overcrowded storeroom and someone was forever stumbling over it or stubbing his toes on it (4 p).

No one knew its purpose and Dr. McFarland spent months trying to find someone who could unravel the mystery. Everyone he asked had his own opinion as to its use, none of them correct. The only information the museum had was a small tag attached to the machine bearing the notation, "Deposited by Dr. Harrison Allen." So Dr. McFarland pored over the writings of Dr. Allen, but still with no results. He even had photographs made and widely distributed but to no avail.

Finally it was Dr. Edmond J. Farris, director of the Wistar Institute, who not only knew what it was but had one. He declared that it was an apparatus for measuring the respiration, and later it was learned from the Smithsonian Institution that it was called a "*thoracograph*." Dr. Allen had been a director of the Wistar Institute and when he left he explained the

instrument to his successor, Dr. D. Milton Greenman, who, in turn, had explained it to Dr. Farris.

Its purpose is to draw outlines of the chest wall, which is accomplished by the patient standing within an iron ring that is mounted upon a heavy base. A large metal disc, to which a pantograph is fixed, is attached to the outer rim of the ring and by means of a handle rotates about it. As the disc is rotated around the patient, a notched wheel on one end of the pantograph follows the contours of the chest wall, while a pencil on the other end transfers the outline to a paper fastened to the rotating disc. Dr. McFarland was amused one day before he had disclosed the identity of the apparatus, when one of the members of the museum committee, who had always promised to look at it but had never found time to do so, walked up to it and said, "That is a thoracograph." This did not dismay Dr. McFarland, however, who had thoroughly enjoyed every minute he had spent as a private detective.

Among the many relics in the Mütter Museum Collection is the *carbolic acid spray apparatus* designed by Lord Lister, which he presented to Dr. William W. Keen, who in turn presented it to the museum. For a long time it had been believed that much disease was caused by microbes in the air, and Pasteur's experiments showing how organisms borne on particles of dust produced fermentation and putrefaction interested Lord Lister greatly. His spray was designed to make the atmosphere antiseptic where operations or changes in dressings were taking place. It was thought that the carbolic acid vapors from it would have sufficient penetration to destroy instantly all germs that came in contact with it. The first spray used was an ordinary rubber ball type, followed by one operated by a foot pedal and bellows, but both of these caused so much physical exertion that relays of assistants were needed. Lord Lister then devised one called "the donkey engine." This cumbersome affair mounted on a tripod and manipulated by a long pump handle, frequently became the object of ridicule as it was seen protruding from the doctor's carriage while he made his daily rounds.

The final steam spray, such as the one in the museum, was used for many years in all parts of the world, although not universally favored. Among the disadvantages were the effect that the carbolic acid vapors had on the hands of the operators and the irritation and sometimes the carbolic acid poisoning that resulted when patients and surgeons were obliged to inhale some of the vapors. Lord Lister, recognizing this, said it was "a necessary evil incurred to obtain a greater good." Although he saw that others were obtaining as good results without it, and in 1881 at the International Medical Congress he spoke hesitatingly about it, he continued to use it until 1887. He was a man, however, who was receptive to new ideas and one willing to admit his own mistakes, and in 1890, at the International Congress in Berlin said, "As regards the spray, I feel ashamed that I should ever have recommended it for destroying microbes in the air."

Among the many instruments in the museum some are ancient, some are old, and a few comparatively new. Some might well be classed as instruments of torture, while others, although out of date, might still be used effectively. Among the latter is an *inhaler*, a large but rather attractive vase-like porcelain apparatus trimmed with blue that gives the appearance of ably providing relief to anyone suffering from a disagreeable head cold. This gadget is called "Mackenzie's Eclectic Inhaler" and was manufactured by S. Mawson and Thompson of London. As "eclectic" is defined as "designating a sect or school which professes to select what is best from

all other systems of medicine," we may assume that this contrivance was thought to be the best inhaler on the market of that day.

It stands about 12 inches high and at its greatest diameter measures about 6 inches. It is composed of three parts: the base, which holds the container, and in which space is provided for a spirit lamp, the container to hold the hot water and medicament, and the lid that resembles an inverted tumbler, the actual lid being the base of the tumbler. The sides of this part dip down into the container about a half-inch below the level of the solution, and as it does not fit tightly, it leaves an air space between the two parts. The lid is perforated around the periphery, as is also the circumference of the rim of the tumbler below the water line, both sets of perforations communicating with the air chamber. In the center of the lid is a flexible tube with a double-valve earthenware mouthpiece. As the user inhales, air pours through the holes in the lid, down through the air-chamber, through the medicinal fluid and up into the mouthpiece. A hole in the lid provides for the introduction of a thermometer to take the water temperature. In a book on inhalation by Dr. J. Solis-Cohen, published in 1876, this and other instruments are described. It is said that even in Hippocrates' writings there is mention of an apparatus for giving inhalations in the treatment of lung and airpassage disorders.

TOOTH DEVELOPMENT AND INFANT FEEDING

In the museum there is a case showing three fetal skulls and many jaw bones. These illustrate *the development of the teeth* from the six-month fetus to the eruption of the permanent teeth, some showing their nervous and vascular distribution.

In the first skull, that of a six-month-old fetus, the anterior and posterior wall of the alveoli are well marked and the dividing walls may be faintly seen. At eight months and at term, the sockets are better marked, and the upper incisor teeth, while undescended, are visible above the alveolar border.

The central incisor teeth have erupted in the jaw bones of a seven-month-old child, and in one skull three months older, eight teeth have appeared. At one and one-half years there are sixteen teeth and the permanent teeth are visible deeply imbedded in the upper jaw.

In the jaw bones of a child of seven years, the lower middle incisor and the first permanent molars of the upper and lower jaws have assumed their proper position. In this specimen the outer table of bone has been removed showing the remaining permanent teeth not yet erupted.

The right half of a skull in this collection shows all permanent teeth with the fangs sawn so as to show the pulp cavity and the vascular supply. Another half skull shows the carotid and jugular vessels, the branches of the fifth cranial nerve and the filaments terminating in the fang of each tooth.

The Cryer Collection, mentioned previously, shows many variations of impacted molars and misplaced, rudimentary, supernumerary and inverted teeth.

The study of tooth development naturally brings to mind the way in which infants were fed before the eruption of their teeth. Through the years there has been a great change, not only in the kind of food given to infants, but in the manner of feeding. In the eighteenth and nineteenth centuries when the baby was not breast fed or was given other food to supplement the mother's milk, baby food consisted of a soft pap made by boiling bread crumbs or biscuits in water with butter and some sweetening. In those days no rows of canned strained vegetables and fruits lined the pantry shelves. Even the use of animal milk was looked upon with disfavor by

some for, according to Dr. T. G. H. Drake, it was thought that the infant would take in, with the milk, the "evil passions and frisky habits" of the animal supplying it.

The pap was fed from horns, pap boats or pap spoons. The museum has no feeding horn, but it seems to have been an interesting receptacle. A small cow's horn was used, the small end of which was perforated. Two pieces of parchment were sewn together like the finger of a glove and attached to the end. The pap was then put into the horn and the infant sucked it through the spaces between the stitches. The pap had to be fairly thin, so it did not give sufficient nourishment, but if larger quantities were given, the baby was in danger of getting colic or diarrhea. Pap boats and spoons, some rudely made probably by some member of the family, and others manufactured, eventually replaced the primitive horn. The museum has two pap boats (25) or dishes. One is white china and the other is white with a blue decoration which was much in favor in the late eighteenth and early nineteenth centuries. The pap was put into the receptacle through a hole in the top and dispensed through another in the end. Both of these were used about 1790 or 1800.

Pewter (26) was widely used for various vessels during this period in England and in the contemporary literature we find pap spoons of pewter mentioned and pictured. These were used for administering castor oil as well as for infant feeding. The bowl of the spoon in the museum was filled with pap through a small trap-door in the top. The tip of the spoon was put into the baby's mouth and the flow controlled by a finger over the hollow handle. Sometimes the food was chewed by an adult so that the saliva mixed with it would make it more digestible. This was not considered unsanitary as long as the person giving the food was healthy.

Another spoon in the collection, while it could be used for food, is thought to be for administering bad-tasting medicine. It looks like an ordinary tea spoon except that there is a lid over the end of the handle. The medicine is placed in the bowl of the spoon and the handle placed in the mouth of the unsuspecting patient. The spoon is tipped slightly and the medicine swallowed before the patient can protest.

A small flat oblong object labeled "a form children used to cut teeth," was dusted for many years and a "form" is all that it was presumed to be. Some years ago a class in pediatrics was brought to the museum and it was thought that this tooth-cutting device might interest them, so it was again dusted off but this time examined more closely. It resembles a soda cracker on one side, and because there is a picture in relief on the other side, it also resembles one of those small German Christmas cookies called "springerle" that are so hard that they too could be used for cutting teeth. The picture shows two female figures, and above them is printed "Mary & Elisa Chulkhurst." On the skirt of one is inscribed "A 34 Y." Below the figures is part of a word, "Bidden-," but here a corner is broken off so that the remainder cannot be seen. The picture was vaguely familiar and suddenly the scrapbook of anomalies given to the museum by Sir William Osler was recalled and in it was found the picture of the form and also the story of the "Biddenden Maids."

Elizabeth and Mary Chulkhurst were twins, joined at the hips and shoulders, born in Biddenden in the county of Kent in 1100. At the age of thirty-four one of them died and the other died six hours later, having refused to be separated, saying that as they came into the world together they would depart the same way. It is told that they bequeathed to the wardens of the parish at Biddenden and their successors, forever, about twenty acres of land, and to commemorate this "phenomenon of Nature," every Easter Sunday after divine services the church wardens gave strangers

one thousand "rolls" with the impression of the twins upon them. They also distributed these "rolls" and about three hundred quartern loaves and cheese "in proportion" to the poor of the parish. According to the account, two women did leave gifts to the church wardens. Whether they were really the Chulkhurst sisters has never been proved, but they received the credit. The form in the museum, while it may have been used by children for cutting teeth is, in all probability, since the practice is traditional, one of the rolls distributed to the poor on Easter Sunday in the parish of Biddenden in the county of Kent!

HISTORIC ITEMS

The original "Gold-headed Cane" with the names of its illustrious owners, Drs. Radcliffe, Mead, Askew, Pitcairn and Baillie, engraved on its head, was presented to the College of Physicians in London by the widow of its last owner, Dr. Baillie, in 1823. According to the account by Dr. William MacMichael, it was "no longer to be carried about, but to be kept amongst the reliques of that learned body." Its seclusion was broken only "by a temporary exhibition to a visitor."

At one time canes were important accessories to a physician's attire, and the Mütter Museum and College Collections together have not one but fourteen canes carried by prominent Philadelphia physicians. Interest in these was stimulated by the acquisition of two that formerly belonged to Professor Edward T. Reichert, professor of physiology at the University of Pennsylvania, one of which has a gold head and is engraved "To Professor Edward T. Reichert from Class 1922, School of Medicine, University of Pennsylvania." Four others have gold heads. One of these was carried by Dr. Benjamin Rush and another by Dr. Isaac Hays. Another with a heavy gold head, formerly belonging to Dr. Samuel D. Gross, was presented by his grandson, Mr. Orville H. Bullitt and bears this inscription:

Professor S. D. Gross
Philadelphia, Pa.
from
W. T. Briggs, M.D.
Nashville, Tenn.
1880

On the gold head of Dr. David Hayes Agnew's cane we find, "D. Hayes Agnew, May 16, 1873." Dr. Nathaniel Chapman's cane has a silver head and is not at all prepossessing, but it has been loaned for various exhibits all over the country, interest being stimulated because he was the first president of the American Medical Association. It was presented by his great-grandchildren.

The cane presented to Dr. W. W. Keen by Dr. William Hemphill Bell, captain of the Medical Corps, United States Navy, on May 28, 1920, has a most unusual head. It is a knob of ivory carved in Switzerland, depicting a gnome (kobold) carrying a human skull. Over one hundred years old, it is a fine piece of workmanship. Dr. Bell had had the head affixed to a Malacca cane with a silver band.

Also of interest is the physician's pomander cane presented Dr. George E. de Schweinitz by Sir William Osler in 1918. The head of a pomander cane is hollow, and various substances were carried in it. Some doctors, being vain, carried perfume; other carried a disinfectant as a deterrent when visiting a patient with a communicable disease, the favorite being Marseilles vinegar, that could be inhaled through perforations in the head. This vinegar, reputedly, had prevented four thieves, who robbed bodies during the plague in Marseilles, from contracting the disease. Vials of liquor also fitted into the head of the cane sometimes, and we are told that even poison was carried to furnish a hasty exit in case a doctor had the misfortune to lose a patient. The museum

pomander cane is exhibited with a china plate given to us by Dr. Samuel X Radbill, which shows an old-time physician carrying such a cane.

The cast of the head of Dr. Fothergill's gold-headed cane was presented to the museum by the Historical Society of the Society of Friends. Dr. Fothergill, a successful London physician and Quaker, was a friend of Benjamin Franklin and of the American colonies as well. He also played an important part in the founding of the Pennsylvania Hospital and in 1762 gave to it its first books. The museum would welcome the original cane because it too was handed down through the years to different owners. The name of each is engraved on the head with the date of transfer, all of which appear quite legibly on the plaster cast. Anthony Morris, a noted preacher of the Society of Friends, one of the early settlers in Philadelphia and ancestor of Dr. Caspar Morris, received the original cane from Dr. Fothergill. He, in turn, bequeathed it to Dr. Thomas C. James, a former President of the College. Dr. Caspar Morris received it from Dr. James in 1835 and in 1884 gave it to his son, Dr. J. Cheston Morris, who in 1913 had the cast of the head made. In 1924 it was in possession of Dr. Caspar Morris of Philadelphia, now deceased, but no amount of detective work has brought it to light and its present whereabouts is unknown.

Canes that one time belonged to Dr. John Foulke and Dr. Horatio C. Wood, two former presidents of the College, and to Dr. John Girvin, who served as secretary of the College for seventeen years, and a recent acquisition presented by Dr. Fred B. Rogers, a cane that formerly belonged to his father, Dr. Lawrence H. Rogers, which was given to him upon his graduation from the New York University College of Medicine in 1908, completes the collection.

There are three unusual and *historic chairs* in the museum. One is a double-sized chair built to accommodate the Siamese Twins, Chang and Eng Bunker. It is not known in which of the twins' houses this one belonged, but its duplicate, in much better condition than the one in the museum, is still in existence and is a collector's item.

Another interesting chair is a dark wooden one with a red plush cushion. It is an armchair equipped with two upright handles on either side which makes it an "exercise" chair and was formerly owned by one Isaiah Hacker in the early part of the eighteenth century. To exercise, one sits in the chair, grasps the two upright handles and moves them back and forth. This raises the seat and the occupant about an inch with a decided bump. It is doubtful that it effectively served the purpose for which it was intended.

Last, but not least, is a rudely constructed obstetrical chair used for many years by a prominent midwife in Asia Minor and presented to the museum by Dr. S. A. S. Methany. Obstetrical chairs are of great antiquity and were used by midwives to aid delivery. They were first mentioned in the Old Testament of the Bible and also by Soranus of Rome who practiced midwifery in the second century after Christ. It is said that they are still being used by some races in the Far East.

Several items in the Mütter Museum may not be thought to be of sufficient interest to be included in this record, but the following story should be told if for no other reason than to show the dedication of one man to a cause and the wonderful results he was able to accomplish.

Among the items in the museum is the broken *cast of the brain of Laura Dewey Bridgman*, a blind deaf-mute and star pupil of Dr. Samuel Gridley Howe, (the Dr. Howe, by the way, who married Julia Ward, author of the "Battle Hymn of the Republic"), a Boston physician and successful teacher of the blind (2b).

Laura Bridgman was born in Hanover, New Hampshire, in 1829. At the age of two she contracted scarlet fever which left her blind, deaf and deprived of the senses of smell and taste, yet through Dr. Howe's teaching she learned to appreciate literature, music and art, and later became a teacher of the blind under his direction at the Perkins Institute where he served as superintendent for forty-three years. So interested was Dr. Howe in all misfortunes of his fellow man that he was forever engaging in international politics which once landed him in a German prison, but even here he translated and studied new German books on the education of the blind. To know the actual difficulties in a life of darkness, he went around the streets blindfolded for weeks at a time and himself learned to use the blind type as well as his pupils.

His work with the blind was started in a small house in Boston with half a dozen pupils and with little money except that contributed by his friend Dr. John Fisher. He invented a raised letter system by which he taught reading, using gummed twine on cardboard to fashion the alphabet. In order to interest people and get money to expand his work, he exhibited his class. This excited great enthusiasm and resulted in the offer of Colonel Perkins to give his large house and grounds for use of the blind if the city of Boston would raise $50,000 for the cause. From this grew the Perkins Institute.

The embryology of a chick also did not seem important until it became apparent that there are a lot of high school students who, unless they are familiar with the business of raising chickens, take this transformation as a matter of course and have little knowledge of the very interesting development. This collection of prepared egg specimens showing development draws the attention of these students, and while a few squeamish ones may temporarily lose their fondness for this popular breakfast food, there is no doubt that they are impressed by this metamorphosis and are more receptive to human embryology when they encounter it later.

There are twenty-four stages of development shown in this exhibit, with each stage from hour to hour or day to day described completely, from the non-incubated impregnated egg showing the air space at the sharp end, with the yolk nestled in the third and thickened layer of albumen held securely by the chalaza which joins either end of it to the shell, to the twenty-first day when the fully developed chick appears. To mention a few stages in this development, the sixth hour of incubation finds the fructified spot in the yolk already somewhat extended, forming the germinal vesicle. In thirty-six hours the earliest formation of the nervous system is the first tendency toward the formation of a living being. At this time the white nutrient substance is transformed into blood and a red dot, which is the heart, is united with the blood vessels. By the fifth day the eyes, wings, legs and facial portions are beginning to be recognizable. On the sixth day the yolk consumes the albumen and reaches its greatest size. From this time on it becomes smaller, since it serves as nutrient for the embryo which absorbs it. Feather papillae appear on the thirteenth day. On the twenty-first day the yolk is completely absorbed except for the end which forms a knob that presses into the abdominal cavity to form a navel. Now, because of the movement of the chick that fills the shell, the sharp point on the top of the beak tears the egg membrane and bursts the shell itself, and the fully developed chick emerges.

THE COLLEGE COLLECTIONS

The famous collections of the Mütter Museum are not the only ones to be found in The College of Physicians. Scattered throughout the building are many objects of artistic, historic and scientific interest

known as the College Collections. Among these are the oil portraits that decorate our walls and the framed photographs, engravings, etchings, prints and historic documents that we sometimes think clutter them. In fact, on the advice of some officials of the College, many of these pictures have been removed from the frames and put into the Sturgis Collection where they are mounted in portfolios, adequately catalogued and better preserved.

Statuary, medical medals and badges, Roman and Greek coins and a variety of miscellaneous memorabilia, some of sentimental value and others so rare as to be priceless, are also in the College Collections. Here we find material that seems to belong rightly to the museum but which donors and the Committee hesitate to add to the Museum Collection where it would be held permanently within the confines of the museum, never to be loaned or used outside of the building.

There are 127 oil portraits in the College, the subjects being founders, past presidents and other distinguished Fellows. There are five portraits by Thomas Sully of Charles Caldwell, Nathaniel Chapman, Robley Dunglison, Samuel Emlen and Thomas Tickell Hewson. The one of Samuel Emlen, who from 1820 to 1828 served as secretary of the College, is said to have been done in 1828 from a death mask and is painted on wood. Robert W. Vonnoh's work is illustrated in the excellent portraits of Dr. S. Weir Mitchell and Dr. W. W. Keen.

Sixty-one other artists are represented, among them Gilbert Stuart, Charles Willson Peale, Rembrandt Peale, William M. Chase, John Neagle, Bernard Uhle, Leopold Seyffert and Thomas Eakins, all as renowned in the field of art as their subjects were in the field of medicine. There are about twenty-five portraits by unidentified artists. For example, one of these is an oil of Benjamin Rush said to have been painted by Benjamin West. We had no proof of its authenticity so experts were invited to inspect it. They were of the opinion that it was not a picture of Benjamin Rush nor was it painted by Benjamin West, although a Fellow of the College who makes a study of works of art feels that it is authentic.

It had been a long time since we had received any new portraits until in September, 1967, Dr. Francis C. Wood presented one of George W. Norris by John Lambert, and in June, 1968, Dr. Julian A. Sterling presented a large oil portrait of Andreas Vesalius, the Belgian anatomist. It is a copy by Adolfo Tagliaferri of Titian's portrait in the Pitti Gallery in Florence, Italy.

Invariably in a collection of portraits, although there may be many that are true works of art, and others we are told are excellent likenesses, there are always a few that have special appeal. This seems to be true of the portrait of Dr. Jacob DaSilva Solis-Cohen. It is a small picture of a thoughtful old man who seems to have come almost to the end of a long and weary road. Although he was the pioneer laryngologist in America, of world wide reputation, and author of the first book on laryngology ever published, in this portrait he might be anyone's tired old grandfather. This painting of a former Fellow of the College and former honorary professor of laryngology at the Jefferson Medical College, was done by W. T. Thomson simply because of the interest of the artist in his subject, and came to us quite by accident. Painted in the last year of Dr. Solis-Cohen's life, it remained in Mr. Thomson's studio for twelve years thereafter until seen by Dr. E. J. G. Beardsley, a Fellow of the College, who attended the artist during an illness. Dr. Beardsley immediately contacted Dr. George Morrison Coates thinking someone interested in Dr. Solis-Cohen might like to purchase it. Dr. Coates, after he had seen it, took the matter up with the Section on Otolaryngology, and was authorized to collect, by subscrip-

tion, the money with which to purchase it. It was presented to the College in 1939 by the Section on Otolaryngology and was recently copied by the artist, Agnes Allen, for Jefferson Medical College.

There is another interesting story behind a small oil portrait of a man who was not a member of the medical profession. It does, however, hold some medical interest because the subject was, on several occasions, a patient at a Philadelphia hospital. The portrait is of a bearded man with a kindly face, and for many years was listed as "a picture supposed to be Christ, done by an unknown insane patient." This proved to be partly true, but one time when the portrait was removed from the wall for cleaning, a letter containing the history of the picture and the name of the artist were found tucked in between the frame and the canvas.

The artist is said to have been Benjamin Fox, a noted Philadelphia artist, and the painting that of himself. He was admitted at the age of twenty-seven to the insane department of the hospital (which is not named) with acute mania. He was usually cooperative and good-natured, although he often became restless and occasionally became agitated and broke dishes. He raved about "Madam Blavatsy," the theosophist, and it was at this time that he took up the study of theosophy, became very much excited and declared himself to be Christ. It was then that he painted the self-portrait which he presented to Dr. D. E. Hughes, and it was through the widow of Dr. Hughes that the College obtained it. We learned from the letter on the back of the portrait that Benjamin Fox won the first Charles Toppen Prize at the Academy of the Fine Arts for the excellently executed picture of two small boys enjoying a game of marbles, while an old man sitting on a stone step, looks on. He was paroled from the hospital twice in the care of his mother, and on two other occasions was discharged as cured, the last being June 9, 1893.

There are two excellent charcoal drawings by John Singer Sargent in the College Collection, one of Dr. William Osler and the other of Dr. John H. Musser, which brings to mind several amusing stories about the artist. Whether they are true or not we do not know.

It has been said that because of his violent and temperamental moods, he did not always do justice to his subject. He disliked one of the Big Four at Johns Hopkins, and when asked to paint a group picture of the famous doctors showed this dislike by painting that particular head so that it would fade year by year until it could no longer be recognized.

He also had a habit of writing "damn" in large letters whenever he had difficulty with a portrait. In the portrait that he painted of Dr. S. Weir Mitchell in 1897 it is said that he had so much difficulty with the doctor's straight informal hair, it evoked enough "damns" to decorate the entire studio.

There were over five hundred small photographs, etchings, engravings and documents on the walls before over two hundred were taken from the frames and put in the Sturgis Collection. The walls in the College office were almost completely covered and there they nimbly danced around on their hooks to the tune of rumbling traffic, coming to rest at last at all angles.

Three groups are listed under "statuary" in College Collections, namely, mural tablets, busts and miscellaneous items.

Four brass *mural tablets* may be found on the walls of the main hallway as one enters the building. One was erected by the College to commemorate the gift of the adjoining herb garden by Eckley Brinton Coxe, Jr., as a memorial to Wharton Sinkler, M.D., a "loyal and devoted Fellow." The second mural commemorates the erection of the present College building in 1909,

the third is a memorial to Dr. Samuel Lewis who served as president in 1884, and the fourth is in memory of Dr. Charles D. Meigs and his son, Dr. John Forsyth Meigs, in recognition of their work and interest in the College.

On the south wall of Mitchell Hall is a small plaque dedicating the hall, "equipped by his friends, to Silas Weir Mitchell, M.D."

Four black marble tablets at one time decorated the wall of the lower east hall of the building, but in 1955 for some reason, now forgotten, they were removed, packed and stored in the basement. One contains the names of nine benefactors, representatives of the original corporators, and another contains the names of twenty-four founders of the College in 1787. A third is in memory of the Fellows of the College who have fallen while in performance of duty during pestilence or war, and the last is in memory of three eminent benefactors, Drs. Thomas Dent Mütter, George Bacon Wood and Samuel Lewis.

We have often been questioned about the sepulchral mural tablet of Mundinus from the Portico of S. Vitale, Bologna, 1318, presented by Dr. William W. Keen, that is on the wall in Thomson Hall. We recently learned from Dr. Theodor Siegl of the Philadelphia Museum of Art that it is a copy and not the original.

There are forty-two *busts* in the collection of marble, bronze or plaster, together with the full-length figure of Aesculapius that stands on the first landing at the head of the marble stairway. This is a replica of the one in the Vatican and was given to the College by Dr. Richard H. Harte.

There are busts of five former presidents of the College in the collection. A marble one of Dr. Silas Weir Mitchell mounted on a marble pedestal stands at the rear of the hall that bears his name. This was done by William Ordway Partridge who was born in Paris in 1861 and received his art training in Rome, Florence and Paris, later making his home in New York. Busts of the other four former presidents are Drs. William W. Keen, James Cornelius Wilson, George B. Wood and Horatio C. Wood. Those of Dr. Keen, Dr. Wilson and Dr. H. C. Wood were done by Samuel Murray and were presented by Mrs. Murray.

Plaster busts of Drs. Philip Syng Physick, Benjamin Rush and Caspar Wistar are editions of those made by William Rush, a cousin of Benjamin Rush. He is considered to be the "First Native American Sculptor." All three originals are in the Pennsylvania Academy of the Fine Arts.

A bronze bust of Professor Wilhelm Roentgen by Cristabel Cummings was presented by Dr. George E. Pfahler.

Two recent acquisitions are the plaster busts of Drs. George E. Coates, Philip F. Williams by Harry Rosin. A small bust of Laennec, inventor of the stethoscope, was presented by the sculptor, Miss Charlotte Geffken. This is attractively colored in a green-brown patina making it resemble bronze.

In 1944 there were *184 medals and 105 badges* in the College Collection. Since then the number of medals has more than doubled and the number of badges has also increased. Twenty-one of the medals were designed and made by Dr. R. Tait McKenzie and presented to the College by him. The collection was further augmented by a great number of medals from the Dr. William Pepper collection.

Medals honoring such men as Dr. David Hayes Agnew, Dr. S. Weir Mitchell and Dr. Samuel D. Gross are among the elaborate ones. Many of these are of gold and are jewelled. The Copley Gold Medal presented to Dr. William Hewson as the result of a paper he delivered in 1769, has been passed on to the oldest medical man in the family in successive generations. It was deposited in the College in 1925 and will

remain in its custody, although it is still the property of the surviving medical man in the Hewson family.

Among the older medals is one of silver in honor of Conrad Gesner, the German Pliny, presumably to commemorate his call to the chair of natural history at Zurich in 1584, and also one of Richard Mead, a very prosperous practitioner of his day, who inherited the famous gold-headed cane from John Radcliffe. We also have a Golden Angel Touch Piece of Henry VIII, used in the cure of the King's Evil in early times when healing became an attribute of sovereignty, supposedly having been bestowed by the gods on men who by genius or fortune had been raised above the level of their fellows. The Angel was first ordered struck by Edward IV in 1465. Its name is derived from the figure on the obverse side of the Archangel Michael piercing the dragon.

An interesting medal of Benjamin Rush, struck during the period in which he was Treasurer of the United States Mint, is considered a rarity, as is also an advertising token of Myddleton, a man mid-wife.

The *badges* consist mostly of old American Medical Association badges worn by members and visitors to the conventions, dating back to 1886. While they seem to be rather insignificant, we displayed them one year at the convention in Atlantic City and were surprised to see that they attracted more attention than our other exhibits.

Badges and pins won by Dr. R. Tait McKenzie are also part of the collection, for Dr. McKenzie was not only a physician and famous sculptor, but an outstanding athlete. The awards he received are not medical in character but are a testimonial of a physician's triumph over his own physical under-development. Four of the medals were first prizes won by him in high jump and hurdle contests and presented by the Montreal Amateur Athletic Association in 1889 and 1890. Some were presented to him by McGill University when he served as director of physical education at that institution, and there are also badges worn by him as referee of various athletic events, including some Olympic Games held in this country and abroad. This same determination that propelled him to atheletic victories, having overcome a physical handicap, also enabled him to master sculpturing without previous training in the art, and to record physical perfection in his many bronze and stone monuments. His four studies in bronze in the College Collection, showing the progress of fatigue in athletes, has been loaned for many exhibits outside of the College.

The Roman and Greek coin collection is a fairly new accession. This was started by presentations from Dr. Samuel X Radbill and Dr. J. Monroe Thorington in 1955. They date from 323 B.C. to A.D. 268.

Among the treasures of the College are the priceless contents of what is known as the *Abbe Case*. It had its beginning in 1920 when Dr. Robert Abbe presented the gold watch of Benjamin Rush, and a year later the sum of $5,000 "to maintain or increase the cabinet of mementoes of historic persons who have greatly added to the advancement of science."

Dr. Abbe was born in New York City in 1851 and in 1922 he became interested in the many stones that he found on a street in Bar Harbor, Maine, and decided to learn more about them. This interest resulted in the founding of the Lafayette National Park Museum of the Stone Age Period on Mt. Desert Island, dedicated in 1928. Knowing of Dr. Abbe's enthusiasm, many of the students of prehistoric man, investigators and searchers in the vicinity, brought their treasures to him. His chosen profession, however, was medicine, and his practice was based upon the soundest of principles. William Lawrence, in a short biography of him, says, "His alert mind and pioneer spirit led him far beyond the routine of a surgeon's practice. . . . He worked in the hope that much that he was

doing with surgery might be better and painlessly done through future discoveries. . . . When the reports of the wonderful work of radium reached him he again became a pioneer and again met criticism for his prompt use of the salts." He actually became a missionary for the discovery of Professor Pierre Curie and Madame Curie. For a formal ceremony in Washington in 1921 Dr. Abbe had two beautiful hour glasses made by Tiffany and Company filled with a luminous material representing the 1000 mg. of radium presented to Madame Curie, since so large a quantity of radium could not be handled. One of these was handed to Madame Curie and the other to President and Mrs. Harding. The College has a replica of one of these hour glasses.

Since the presentation of Dr. Rush's gold watch, the contents of the Abbe Case has increased. Dr. Rush's great-granddaughter, Catherine Rush Porter presented his silver shoe buckle set with brilliants, and an oil miniature of him was given by Dr. George P. Müller. Edward Jenner is represented by his inkstand, which was used by Dr. S. Weir Mitchell for many years, and by a lock of hair presented by Dr. William Osler, in 1893. On the back of the locket holding the hair is the following inscription: "This hair was cut off after Jenner's death by Mrs. Austin of Slone, his niece, and handed by her to me. W. A. Awdry, July 29, 1892."

A small case of surgical instruments used by Joseph Lister (his original tubes for testing lactic acid and fermentation) and a gavel made from the doorknob of Louis Pasteur's home in Arbois and the wood from Lord Lister's table in the Glasgow Infirmary are other priceless relics in the case. The gavel was presented to the Society of Clinical Surgery by the surgeons of the Infirmary in 1924, and presented to the College by the Society on a permanent loan in 1938.

Pasteur is further remembered by his model of a crystal of tartaric acid, used in his lectures, and a medal bearing his portrait.

The large instrument in the center of the case is the original Quartz-Piezo-Electrometer devised by Professor Pierre Curie and used by him and Madame Curie in the earliest measurements of radium.

The most recent addition to the Abbe Case is a small silver urn formerly belonging to Dr. S. Weir Mitchell and presented to the College by Dr. Francis R. Packard. He received it from the widow of Dr. John K. Mitchell who had Dr. Packard's name engraved upon it, below the names of the former owners, namely, I. Fothergill, Jos. Parrish, Geo. B. Wood, H. C. Wood and S. W. Mitchell. These small receptacles were used to hold locks of hair or other mementoes.

MEMORABILIA OF FAMOUS INDIVIDUALS

In 1946 two small cylindrical cases were presented to the Committee on College Collections as "two small instrument cases." As such they were accepted and catalogued, but as nothing was known about them, and display space was limited, they were carefully stored with other material not placed on permanent display. Five years later in 1951, Dr. William N. Bradley, completing the study of the lives and accomplishments of Dr. William S. Forbes and Florence Nightingale, began a search for *a kit used by Florence Nightingale* when she served at the Barrack Hospital in Scutari during the Crimean War, and of which he had a photograph. Records at the Jefferson Medical College, where it was supposed to be, and at The College of Physicians, where Dr. Bradley thought it might be, disclosed nothing, and as those who were turning things upside down to find it had not seen the picture, they had no idea of the appearance of the object for which they were looking. Finally, when to Dr. Bradley's dismay it was given up for

lost, the curator of the Mütter Museum asked to see the photograph of this valuable memento, and at once recognized it as the smaller of the two cases that had been presented to the College in 1946! This and the other case, which it was learned had belonged to Dr. Forbes who worked with Miss Nightingale in Scutari, were immediately taken from storage and are now on permanent exhibit in the museum of the College. Dr. Forbes' case was evidently used for small surgical instruments, but that of Florence Nightingale is a sewing kit, lined with checked silk, somewhat the worse for wear, but still holding a few needles and a small red emery strawberry.

The *small case of Dr. William S. Forbes* derives its interest not so much as an instrument case, but from the fame of its former owner, for he was the author of the Anatomy Act of Pennsylvania, which put an end to the sale of human bodies to the highest bidder by the "resurrectionists" and instead made available to medical schools for the advancement of science, the bodies of all deceased persons to be buried at public expense. In 1863, Dr. Forbes, as medical director of the 13th Army Corps, U.S. Volunteers, realized the desire and need of many surgeons of a practical knowledge of anatomy. In part, the realization of this need inspired him to draw up the Anatomy Act of Pennsylvania, and at a meeting of The College of Physicians in February, 1867, Dr. Forbes presented a resolution that a committee of three be appointed to present the views of the College to the State Legislature, urging the passage of a law sanctioning the dissection of unclaimed dead bodies. Drs. Forbes, S. D. Gross and D. H. Agnew were appointed, and after three visits to the Capitol the Anatomy Act became a law on March 18, 1867.

Among the strange things that have been presented to the College is a very ancient leather box, 8 inches tall and 5 inches in diameter, containing what was described as a fur muff carried by Dr. John Foulke to keep his hands warm when he drove to Valley Forge to operate on the soldiers in George Washington's Army. The muff itself, if indeed it is a muff, is 5 inches wide and the diameter of the opening to accommodate the hands is only 3 inches. The diminutive size of the fur piece caused some doubt in the minds of the good doctors that it could possibly be a muff. It is difficult for a man to insert one hand in it, much less two! But Mrs. E. Paul duPont a granddaughter of Dr. Foulke, explained that all the members of the Foulke family were noted for their very small and delicately shaped hands. One member of the Committee on College Collections contended that it was merely the discarded cuff from some old winter coat. Another member, who invariably ridiculed the styles of the opposite sex, declared that it could very well be one of the silly hats, similar to those being worn that year (1942) by the women of his family. But no leather box of this sort ever housed a coat cuff or a hat. From its size and shape the box definitely was made to accommodate the muff. This gift was presented by the Foulke & Long Institute and accepted by the College with the somewhat meager information supplied by Mrs. du Pont. No further information has come to us through the years, so it remains in our files as "a muff carried by Dr. John Foulke while driving to Valley Forge to attend the soldiers in George Washington's Army." The item is not medical but its association with Dr. Foulke contributes a small bit to early American medical history.

While many exhibits in the museum engage the interest of visitors, there is one article that never fails to excite admiration. It is the large handsome mahogany desk used by the curator. Actually a museum piece, it is still serving its original useful purpose. The top measures 5 by 6 feet and is beautifully carved. It contain six drawers, three on each of two sides. Th

top fits on two separated sections, one containing two shelves, the other two closed cupboards. The legs of the two sections are also handsomely carved.

The *desk once belonged to Dr. Jacob Mendez DaCosta*, a former president of the College, who was graduated from Jefferson Medical College, to which he returned after studying extensively in Europe to become the greatest clinical teacher of his time. The desk was given to the museum by the family of the late Dr. Warren B. Davis, also a graduate of the Jefferson Medical College, a distinguished physician and Fellow of the College. It is not known how the desk came into the possession of Dr. Davis, but the family could not have found a more fitting repository for this beautiful piece of furniture, for Dr. DaCosta, while at Jefferson Medical College, studied under Dr. Thomas Dent Mütter and, because of his early interest in pathological anatomy, was appointed during his second year, with Dr. John H. Brinton (a fellow student who served on the Mütter Museum Committee for twenty-nine years), to demonstrate to other members of his class the tumors and other specimens removed by Dr. Mütter in his clinic.

A son of Dr. Davis furnished what little information we possess, and he had a small brass plate attached to the desk to establish its identity permanently. A handsome lamp accompanied the desk, and we were told that it was designed by Catherine the Great of Russia. Aside from being a beautiful and historic addition to the museum, the gift was especially appreciated by the curator since it replaced an old dilapidated typewriter desk upon which our ancient typewriter was fastened with wire, the well in which it reposed being kept open by an ordinary hook and eye such as are frequently used on old screen doors. This often came unhooked by the vibration caused by typing, making the machine disappear into the nether regions with a bang at the most unexpected moments!

There are quite a few smaller items that formerly belonged to well known doctors that may seem rather insignificant as exhibits, but their interest lies in the association with the owners. For instance, we have a Pompeian sealing lamp that had belonged to Dr. John Morgan, founder of the first medical school in America in 1765 (now the School of Medicine at the University of Pennsylvania), and who was elected professor of theory and practice of medicine there. The lamp was donated by Dr. Morgan's great-granddaughter in 1913.

In 1833, Dr. Nathaniel Chapman was one of thirteen Philadelphia physicians to whom silver pitchers were presented for the conspicuous part he and the others had taken in treating the sick as chief officers of the various hospitals during an epidemic of Asian cholera. Other mementoes of Dr. Chapman are his seal and an attractive snuff box. The box is a ram's horn set with a cairngorm stone, a smoky yellow variety of rock-crystal found in the mountains of Scotland. Presented to him by the St. Andrews Society, it was given to the College by his relatives.

We also have the watch charm and seal worn and used by Dr. James Young Simpson, a noted Scottish obstetrician. He designed several types of obstetrical forceps and was the first to employ chloroform in obstetrics in 1847.

Gold and onyx cuff links are mementoes of Dr. Alfred Stillé, who played an interesting part with Dr. William W. Gerhard in establishing the difference between typhus and typhoid fever.

Dr. Joseph Leidy was not only a famous anatomist but a naturalist as well. This probably accounts for the small silver magnifying glass that rests in one of our cases. On it is inscribed "The Constant Companion of Dr. Joseph Leidy." A small tobacco pipe that belonged to him shares the space with the magnifying glass.

In the spring of 1946, Dr. William N. Bradley presented to the College the key to

the bedroom of Dr. S. Weir Mitchell. The Committee debated accepting this for some time, but after noting other personal belongings of individuals in the collection, decided to accept it. Dr. Bradley obtained it from Mr. Charles Maxwell, a Philadelphia jeweler who was a friend of Dr. Mitchell and who had purchased his home. He had transferred many things from there to his Seaside Park home, and among them was the key, which was given to Dr. Bradley when he visited Mr. Maxwell's home.

A grateful patient of Dr. Washington L. Atlee presented him with a silver loving cup which is now on display in the museum. Another token of esteem, however, has always been kept in the College safe. This is a sterling silver salver of Indian workmanship presented to Dr. Hobart Hare in 1894 by the government of His Highness, the Nyzam of Hyderabad, India, in recognition of his studies upon the effects of chloroform. The medallions upon it represent the various pursuits of the inhabitants of Hyderabad.

Should an officer of the College ever fail to call a College meeting to order, it will not be for want of a *gavel*, for besides those that have served their original purpose for many years, there are six of historic interest that are in the College Collections or are on continuous loan under College trust.

One of these was presented to Dr. William Pepper, president of the first Pan-American Congress in 1923, another given by the Medical Club of Philadelphia in 1925 to its former president, Dr. John G. Clark, and a third deposited in the College on loan by the Society of Clinical Surgery. This last was made from the doorknob from Pasteur's home and the wood from Lister's table in the Glasgow Infirmary and was given to the Society by the Surgeons of the Glasgow Infirmary.

A gavel of historic wood, made by Dr. Chevalier Jackson in 1926, belonging to the Section on Otolaryngology but kept in the museum, is placed on the chairman's desk at each meeting of the section. The head is from the wood of a dogwood tree that grew at Dr. Jackson's childhood home in Greentree Township, Pennsylvania. The broken handle of a hammer used by him since boyhood forms the handle, and the box, on the top of which is a silver plate containing the engraved names of all past chairmen, is made from a piece of Rambo apple tree planted by his grandfather in 1828.

A recent presentation is a gavel that is unique in that it is made of mastodon ivory. It was presented to the College by Dr. George E. Pfahler to be used by presidents of the College at all College meetings. On the lid of the box in which it is kept is a silver plate containing the engraved names of all past presidents, with an additional silver plate on the inside for future names. Dr. Pfahler states that the ivory came from the tusks, now being found in the melting glaciers of Alaska, of one of the oldest and largest creatures that inhabited the earth more than 25,000 years ago. Because of the excellent preservation of the ivory over so long a period of time, he thought it would serve as an emblem of the durability of the work of our great physicians.

As might be expected, there are some exhibits in the Mütter Museum that a non-physician curator or layman has difficulty understanding and absorbing enough data from the scientific literature to write intelligently about them. Under such circumstances the old adage "the least said the sooner mended" applies, and the best thing to do, since the specimens will no doubt be of value to someone, is to let the fact be known that such material exists so that all who are familiar with that particular material may make use of it if they so desire. One of these is a collection of over one hundred lantern slides presented by Dr. B. B. Vincent Lyon, displayed in a cleverly designed illuminated cabinet la-

beled, "The Story of Biliary Tract Drainage," which Dr. Lyon presented to the College in 1946.

For about thirty-five years Dr. Lyon was associated with Jefferson Medical College where he founded the out-patient gastrointestinal clinic, and it was here that his pioneer work on the biliary tract and the introduction of non-surgical or diagnostic biliary drainage was done. *An Atlas on Biliary Drainage Microscopy* by him is in the College library and contains photomicrographs of most of the slides in the collection, besides a discourse on the results of his experiments. The display excites quite a good deal of interest although the treatment is now outmoded, according to Dr. Guy M. Nelson, curator at Jefferson; however, it is still used for diagnosis. Being in the College Collections, the whole or part of the exhibit may be loaned, and in fact, many of the slides have been borrowed for some of the College meetings.

Some items, while they may properly belong under "statuary," are of special interest so we have catalogued them under "miscellaneous." Three of these are death masks, one of Dr. W. W. Keen by R. Tait McKenzie, one of Dr. Joseph Leidy by Samuel Murray, and one of John Hunter.

The cast of the left hand of Dr. David Hayes Agnew also by Samuel Murray is commemorative of the ambidexterity of Dr. Agnew, for he could use either hand equally well when operating.

All of the specimens in the Museum and College Collections are not mentioned in these pages because in some cases little information is available and in other cases their mention would be repetitious.

We hope that this story about the Mütter Museum and College Collections will increase interest in the treasures of the College. May the Mütter Museum continue to grow and contribute to the knowledge of the many students who visit it.

CURATORS AND COMMITTEE MEMBERS OF THE MÜTTER MUSEUM

Year	*Curator*	*Committee Chairman*
1849	John Neill	Moreton Stille
1850–56	No record	No record
1857	No record	Edward Hartshorne
1858	William Hunt	William Gobrecht
1859–60	William Hunt	No record
1861	John H. Packard	James Darrach
1862	Thomas G. Morton	No record
1863	Thomas G. Morton	J. Rodman Paul
1864	No record	J. Rodman Paul
1865–77	T. Hewson Bache	J. Rodman Paul
1878–83	T. Hewson Bache (Richard H. Harte acted for Dr. Bache, 1882–83)	William Hunt
1884–95	Guy Hinsdale	William Hunt
1896–99	Guy Hinsdale	John H. Brinton
1900–07	Ward Brinton	John H. Brinton
1908–09	Ward Brinton	George McClellan
1910–22	Clarence Hoffman	George McClellan
1923–26	Henry Morris	George Fetterolf
1927–33	Harry P. Schenck	George P. Müller
1934–36	Harry P. Schenck	J. Parsons Schaeffer
1937–38	Joseph McFarland	J. Parsons Schaeffer

1939–42	Joseph McFarland	J. Parsons Schaeffer
	Ella N. Wade, Clerk	J. Parsons Schaeffer
1943	Ella N. Wade	J. Parsons Schaeffer
1944–45	Ella N. Wade	J. Parsons Schaeffer
	Joseph McFarland, Honorary Curator (died 9/22/45)	Leandro Tocantins (to fill place left vacant by Dr. Schaeffer's appt. as Vice President of College)
1946–50	Ella N. Wade	Oscar V. Batson
1951–55	Ella N. Wade	R. Philip Custer
1956–60	Ella N. Wade	Theodore F. Bach
1959–60	Ella N. Wade	
1961–65	Ella N. Wade	A. Reynolds Crane
1966	Ella N. Wade	Nicholas Padis
1967	Ella N. Wade	Clark E. Brown
1968–69	Ella N. Wade	Fred B. Rogers
1970	Ella N. Wade (to June 30)	William I. Gefter
	Elizabeth M. Moyer (Assistant Jan.–June) Curator (July–December)	

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A Century of Ophthalmology at the University of Pennsylvania

By DANIEL M. ALBERT, M.D.*

INTRODUCTION

This year is the century mark for the Department of Ophthalmology at the University of Pennsylvania. Only somewhat younger than the specialty of ophthalmology itself, this department has developed from a pioneering effort in American medicine to a position of international prominence and responsibility. To mark this occasion, we briefly review the history of the department and reflect upon what lies ahead, for in the words of Sir Winston Churchill, "The longer you can look back, the farther you can look forward."

On a blustery winter day, January 6, 1874, the Committee on the Department of Medicine submitted to the Board of Trustees of the University of Pennsylvania a plan for the organization of the first teaching hospital in the country, to be called the Hospital of the University of Pennsylvania. Included in the proposal was the suggestion that the position of clinical professor of diseases of the eye be established for which Dr. William F. Norris was proposed (Figure 1). Three weeks later Dr. Norris was elected as the first clinical professor of diseases of the eye at the University of Pennsylvania. This was but the fourth time in the United States that ophthalmology was recognized by the founding of a chair and the appointment of a clinical professor. Earlier chairs of ophthalmology had been established at Miami Medical College (Cincinnati) in 1860, Bellevue Medical College, 1868, and Harvard Medical College, 1871.

In appearance Norris was a model of the Victorian physician, with his neatly trimmed full beard, his fashionably cut frock coat, his rapid gait, and his imperturbable amiability. Like the distinguished fellow professors on the staff, men such as Alfred Stillé and George Wood in medicine, David Hayes Agnew in surgery, R. A. F. Penrose in obstetrics, William Goodell in pediatrics, and Horatio C. Wood in neurology, Norris carried in his pocket the stethoscope and percussion hammer and thermometer. But there was in addition, an ophthalmoscope, an instrument capable of revealing the retina and optic nerve within the previously invisible depths of the eye (Figure 2). Helmholtz had invented this instrument twenty-three years before and with it modern ophthalmology had been born.

BENJAMIN FRANKLIN

Although ophthalmology has existed formally as a department for a century, interest and contributions to visual science and eye disease go back almost a hundred years more and begin with Benjamin Franklin's invention of the bifocal (Figure 3). Franklin, the founder of the University of Pennsylvania, first wrote of the bifocal in 1785 when he was seventy-eight years of age. In a letter to George Whatley, dated May 23, 1785, he stated:

"I imagine it will be found pretty generally true, that the same convexity of glass, through which a man sees clearest and best at the distance proper for

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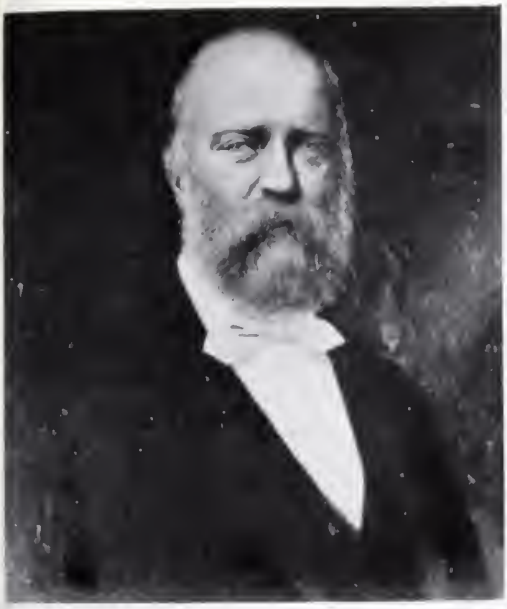

Fig. 1. William Fisher Norris. (Courtesy of University of Pennsylvania Archives.)

Fig. 2. Original Helmholtz ophthalmoscope. (Courtesy of Armed Forces Institute of Pathology.)

reading, is not the best for greater distances. I, therefore, had formerly two pair of spectacles, which I shifted occasionally, as in traveling I sometimes read, and often wanted to regard the prospects. Finding this change troublesome, and not always sufficiently ready, I had the glasses cut, and half of each kind associated in the same circle. . . . By this means, as I wear my spectacles constantly, I have only to move my eyes up or down, as I want to see distinctly far or near, the proper glasses being always ready.

"This I find more particularly convenient since my being in France, the glasses that serve me best at table to see what I eat, not being the best to see the faces of those on the other side of the table who speak to me; and when one's ears are not well accustomed to the sounds of a language, a sight of the movements in the features of him that speaks helps to explain; so that I understand French better by the help of my spectacles. . . ."

In 1785, however, there were no ophthalmologists to pass on the benefits of Franklin's ingenious invention. The art of optical glassmaking itself was clothed in secrecy and passed on from father to son, and spectacles were sold by peddlers, and it was in London that Franklin had his spectacles made. Eye disease was treated for the most part by itinerant quacks, who were either self-taught or had received some training somewhere in Europe. These persons called themselves "oculists" and were viewed with contempt and aversion by the systemically trained physicians of that day.

There were only a few physicians in the United States in Franklin's time skilled in eye surgery. Dr. William Shippen, Jr., who filled the chair of professor of surgery, anatomy and obstetrics at the University of Pennsylvania (Figure 4), and Franklin's close friend, Dr. Thomas Bond, were

Fig. 3. Benjamin Franklin Describes Bifocals. (Courtesy of Bausch & Lomb, Inc.)

among these (Figure 5). The Philadelphia Dispensary, a charity institution founded by Benjamin Rush, is said always to have had a certain proportion of patients with eye diseases, and the Philadelphia Hospital and the Pennsylvania Hospital had on their staffs men who undertook the treatment of ocular diseases. But the art and science of ophthalmology in America was as yet unborn.

Fig. 5. Thomas Bond. (Reproduced from copy in The College of Physicians of Philadelphia.)

PHILIP SYNG PHYSICK

In the same year that Franklin described his bifocals, there was graduated in liberal arts from the University of Pennsylvania a frail, seventeen-year-old boy, "...a faithful, scrupulous, toiling soul, something of a prig, and not popular with his mates, but readily devouring any mental pabulum offered him." His name was Philip Syng Physick, and he was to become one of the outstanding American eye surgeons and teachers of ophthalmology of his time (Figure 6).

Fig. 4. William Shippen, Jr. (Reproduced from copy in The College of Physicians of Philadelphia.)

After his graduation, Physick studied under Dr. Adam Kuhn, professor of materia medica and botany at the University of Pennsylvania, and then with Dr. John Hunter in London. In 1792, at twenty-four years of age, he received his Doctor of Medicine degree from the University of Edinburgh. Physick then returned home to Philadelphia, a flourishing community of over fifty thousand people, where he was soon appointed to the staffs of the Bush Hill Hospital and the Pennsylvania Hospital. In 1800 he was taken into the Medical Department of the University of Pennsylvania and five years later became professor of surgery.

Like the other surgeons of his day, Philip Syng Physick treated infectious diseases, reduced and splinted fractures, amputated

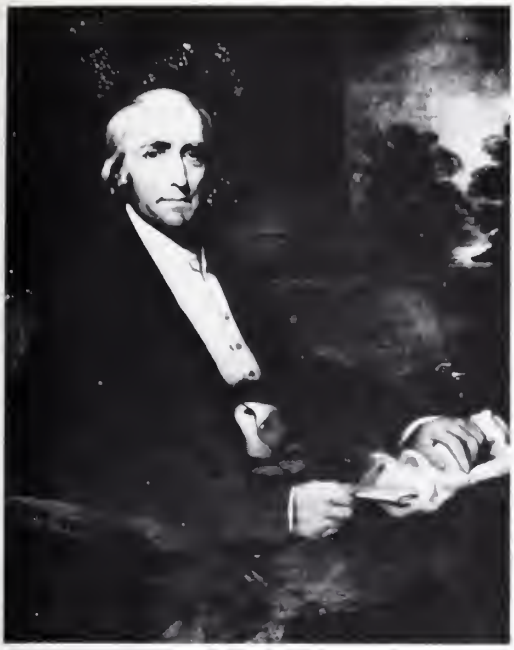

Fig. 6. Philip Syng Physick. (Courtesy of Pennsylvania Hospital.)

legs, incised breasts, tapped chests and abdomens, operated for stones in the bladder, and attended difficult confinements. In addition, he became interested in surgery of the eye, particularly for cataract. According to his son-in-law, Dr. Jacob Randolph, it was this latter operation, together with his operation for stones in the bladder, that was foremost in establishing his reputation as a surgeon (Figure 7).

In 1795, Physick began to keep a journal of his most interesting and unusual cases, and the first patient he described was a blind woman whose vision was restored by cataract operation. Whereas couching was the usual procedure of that day, Physick's skill permitted him to extract the cataract. Physick used a method similar to that of Baron Wenzel.

Physick made the observation that "... there is great danger of forcing out the vitreous humour but this is no objection and I think a small quantity of vitreous humour being lost is of advantage and the wound heals more readily than when none is lost." In cases of "membranous cataract," Physick "succeeded in drawing out the capsule entire."

The smallpox epidemics which raged at the time left in their wake numerous occluded pupils and leukomatous corneas. Consequently, next to cataract, Physick's most important operation on the eye was for artificial pupil. This he achieved with an instrument of his own design: a forceps with a punch-like beak with which to remove a piece of iris. Another important contribution to ophthalmology as well as to general surgery was Physick's suggestion and demonstration of the value of animal ligatures in wound closure.

Physick's teachings on the surgery of the eye were contained in sixty pages under ten chapter headings in the book *Elements of Surgery*, written by his nephew, Dr. John Syng Dorsey, and first published in 1813. The book closely followed Physick's lecture notes in both organization and content, and the source was acknowledged by Dorsey in the preface. The *Elements of Surgery* appeared ten years before the first

Fig. 7. Instruments in the surgical kit of Dr. Jacob Randolph, manufactured in France. He was son-in-law of Dr. Philip Physick. (Courtesy of Pennsylvania Hospital.)

American text on ophthalmology and was probably the first American surgery text to contain a section on the eye.

According to Caldwell, Gibson, Horner, Randolph and other of Physick's contemporaries, he was an outstanding teacher and had considerable impact on his students. He began to lecture to the classes at the medical School in 1800. Benjamin Rush himself attended and applauded these lectures. Physick was a striking figure standing before his class: erect and handsome, his face pallid, as if chiseled out of marble, his eyes black, his hair powdered and worn in a queue. It was Physick's practice to rise at four o'clock, light the fire and write out his lectures in full before beginning the day's rounds. He read his lectures to the class, stopping occasionally to interject a pertinent case history.

A set of lecture notes in Physick's own hand as well as the notes taken by a dozen of his students are in possession of The College of Physicians of Philadelphia. These discuss in detail Physick's operation for cataract, as well as his treatment for other eye diseases. It was probably this emphasis which led many of his pupils to choose for their graduation theses topics dealing with the eye.

Some of the men who passed through Physick's lecture halls later made contributions to the development of American ophthalmology. These included *George Frick*, who wrote the first American ophthalmology text, which he dedicated to Physick; *Isaac Hays*, the first American physician to prescribe cylindrical lenses for astigmatism; *George McClellan*, who in 1821 founded the first eye institution in Philadelphia; *Daniel Drake*, who founded the first eye infirmary west of the Alleghenies; *Squier Littell*, whose book *Diseases of the Eye* was widely studied by medical students and physicians; *Joseph Parrish*, the first president of the Board of Managers of the Wills Eye Hospital; and *Isaac Parrish* and *George Fox*, who together with Hays and Littell comprised the first surgical staff of the Wills Eye Hospital.

WILLIAM GIBSON

Two additional students who attended the lectures of Philip Syng Physick deserve special notice. These are Dr. William Gibson, successor to Physick's chair as professor of surgery, and Dr. William Edmonds Horner who followed Physick as professor of anatomy.

Unlike the frail, introspective Physick, William Gibson was a robust, rugged man: a surgeon, teacher, traveler, and scholar who lived his life to the fullest (Figure 8). His hand, which won such fame for its deftness with a knife, was skilled as well with a pen or with the oil brush, clenched into a fist in a friendly boxing match, or clasped around a rod and reel on the quiet

Fig. 8. William Gibson. (Reproduced from copy in The College of Physicians of Philadelphia.)

banks of the Schuylkill. Although he was, like Physick, a general surgeon, the treatment of cataract was one of his major interests. Unlike Physick, who preferred extraction of the cataract, Gibson preferred to needle or cut up the lens and let it be resorbed. He published extensively on this, developing his own techniques and designing special instruments.

While surgeons in the early nineteenth century could treat cataract, an operation for a crossed eye (strabismus) was unheard of. Professor Gibson, however, was the first surgeon to attempt a cure of this disorder by cutting one of the extraocular muscles of the eye. As his students attested, he practiced this operation with mixed success, performing it as early as 1818. His old professor Physick, however, thought the operation unsound and convinced him to abandon it. Gibson never bothered to report his experience with strabismus and it was Johann Friedrich Dieffenbach who twenty-one years later (1839) won lasting fame in ophthalmology by dividing the internal rectus muscle of a patient with a crossed eye and describing his procedure completely.

Fig. 9. William E. Horner. (Reproduced from copy in The College of Physicians of Philadelphia.)

WILLIAM E. HORNER

In the early days of the University of Pennsylvania, the chair of anatomy was filled by a prominent surgeon. With the coming of the nineteenth century, the scalpel gave way to the microscope as the principal tool of the anatomist in the study of the structure of the eye. It remained, however, for Dr. William E. Horner, professor of anatomy and surgeon at the University of Pennsylvania, to dissect and fully describe a final, delicate structure of the eye—the tensor tarsi muscle—Horner's muscle—which had for centuries eluded the anatomist (Figure 9).

To Horner's mind the common descriptions of the structures of lacrimation did not satisfactorily explain the function they performed. He believed there must be a special muscle situated on the posterior surface of the ducts and sac. In a series of minute dissections he came upon the delicate muscle fibers extending along the course of the lacrimal canal from the crest of the lacrimal bone to the lacrimal puncta. Horner described his finding in an article in the *Philadelphia Journal of Medical and Physical Sciences*, in 1824, entitled, "Description of a Small Muscle of the Inner Commissure of the Eyelids." He thus became the first to explain satisfactorily the passage of tears from the conjunctival sac to the nose (Figure 10).

Horner was also one of the first American physicians to study the composition of the aqueous humor, the nature of the crystalline lens, and to devise an operation for the correction of ectropion.

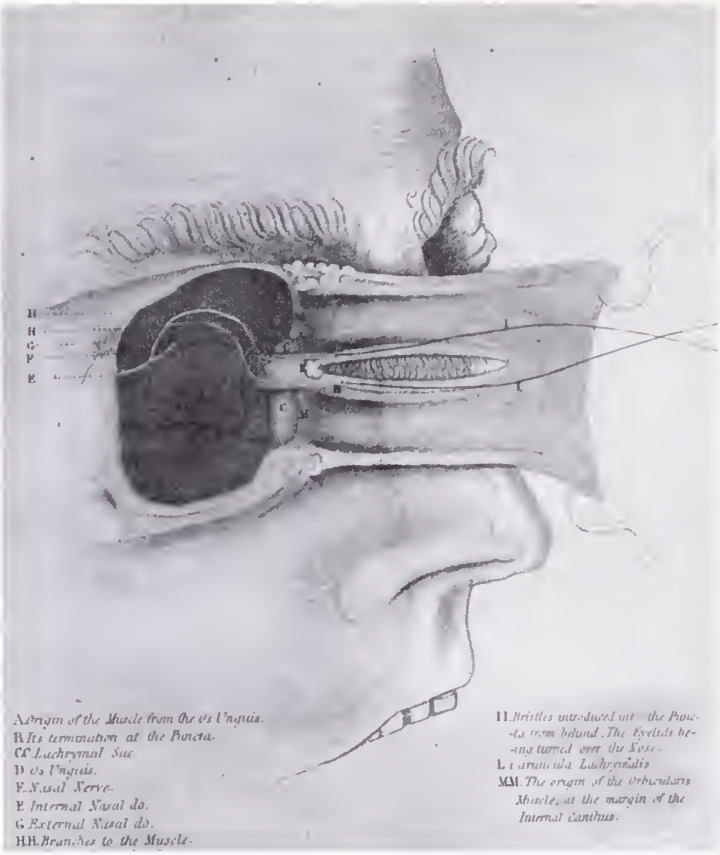

Fig. 10. Plate of Horner's Muscle which appeared in *Philadelphia Journal of Medical & Physical Sciences*, 1824. (Reproduced from copy in The College of Physicians of Philadelphia.)

Fig. 11. David Hayes Agnew. (Reproduced from copy in The College of Physicians of Philadelphia.)

DAVID HAYES AGNEW

The treatment of eye diseases by the general surgeon reached its high point of development with Dr. David Hayes Agnew (Figure 11). Trained in the amphitheaters of Gibson and Horner, Agnew had the benefit of Helmholtz' ophthalmoscope and had a knowledge of the work of von Graefe and Donders. Although he practiced every facet of surgery and medicine, he holds a position of prominence among early American ophthalmologists. Agnew rose from a country doctor with a horse and buggy practice in the towns of Chester and Lancaster, Pennsylvania, to become a prominent surgeon and head of a school of anatomy in Philadelphia (Figure 12).

In Agnew's day, with numerous schools

of medicine and anatomy newly established, the demand for bodies was great, and no proper channels existed to supply them. When Agnew could, he obtained bodies for his school legitimately; but, at other times he went to potter's field at midnight, resurrected a body, placed it in a sack beside him in his buggy and drove to his Chant Street dissecting room.

An interesting story is told about the final disposition of his cadavers:

> "One of his customs was to put subjects into a pond full of eels and these did their work very thoroughly. Unfortunately the man who had the reputation of selling the best eels in town secretly got them from this pond. The result when by accident he learned how the eels were nourished, created rather a bad reputation for Agnew."

His abilities as a teacher as well as his skills as a physician brought Agnew to the forefront of Philadelphia medicine. In 1864 he was elected attending surgeon to the Wills Eye Hospital. Seven years later he rose to become professor of the principles and practice of surgery at the University of Pennsylvania. The third volume of his great work on the *Principles and Practice of Surgery*, published in 1883, contained an extensive section on ophthalmology and demonstrated his knowledge and abilities on every facet of ophthalmology from measuring pressure in the eye to examination with the ophthalmoscope to medical treatment of glaucoma and cataract surgery. Agnew remained as professor of surgery at the University until 1889. With his death three years later in 1892 an era had ended at the University of Pennsylvania: the surgeon who splinted fractures, impostumated livers, and operated for stones in the bladder would rarely again touch his scalpel to the eye. The field of ophthalmology which Physick, Gibson, Horner, and Agnew had for more than a century dominated at the University of Pennsylvania was now so extensive and exacting that only the specialist with the necessary training and skills could meet its demands.

Fig. 12. Cast of hand of D. H. Agnew. (Original in the Mütter Museum of The College of Physicians of Philadelphia.)

The New Department

The new Department of Ophthalmology began its function with the opening of the Hospital of the University of Pennsylvania, located on the old Hamilton Farm in West Philadelphia, the site it occupies today (Figure 13). It was inaugurated on June 4, 1874, as a 3-story, 146-bed institution and was cited as possibly "the most elegant and commodious edifice of its type in the country." Beds and operating facilities were provided for eye patients, and an eye clinic was located in the basement. The first clinical records of the department of ophthalmology are contained in a leather-bound journal. Here Norris and his assistants recorded the findings and treatment of each patient. The new department demonstrated that interesting eye patients were not limited to Vienna, Berlin or London. Among the first cases recorded were a two-and-one-half-year-old boy with a "glioma of the retina," a sixty-year-old man with a choroidal tumor "the size of a small hen's egg," and a woman with "vicarious menstruation of the caruncle." After two years of function, the eye dispensary was

Fig. 13. Early photograph of Hospital of the University of Pennsylvania. (Courtesy of University of Pennsylvania Archives.)

the third largest of the University's clinics. By 1901, Norris' last year as professor, it had become the largest. Undoubtedly much of the success and distinction which the department of ophthalmology at the University of Pennsylvania has enjoyed during its first century stems from the firm foundation established by Dr. Norris.

Dr. William Fisher Norris (Figure 14) was the son of a distinguished surgeon, Dr. George W. Norris, and Mary P. (Fisher) Norris. Norris was graduated from the University of Pennsylvania School of Medicine at the time the Civil War was at its height, and he distinguished himself by operating and dressing wounds continuously for thirty-six hours at the Battle of Gettysburg. During the Civil War, Norris had become involved in medical photography. This research stimulated his interest in physiologic optics and is said to have led to his choice of ophthalmology as a profession. At the end of the Civil War, Norris resigned from the army and pursued the study of ophthalmology abroad. He visited all of the large eye clinics but spent most of his time in Vienna under the instruction of Arlt, Jaeger, Mauthner and Stricker. Norris returned to Philadelphia in 1870 where he served as a lecturer on diseases of the eye and ear at the School of Medicine of the University of Pennsyl-

William Fisher Norris (1839-1901)

Fig. 14. William Fisher Norris. (Reproduced from copy in The College of Physicians of Philadelphia.)

vania prior to being appointed the first professor of diseases of the eye. He was an outstanding clinician, teacher and ophthalmic pathologist. As a surgeon he was slow, precise, conservative and viewed by some as "unduly deliberate." Norris' most important personal contributions during his years as professor were his publications, particularly his textbooks, through which he established an international reputation. Several of these were termed "classical" works for more than a decade after his death. Included among these were his *Textbook of Ophthalmology*, written in conjunction with his student, Dr. Charles A. Oliver (1892), and Norris and Oliver's encyclopedic *System of Diseases of the Eye*, the first volume of which appeared four years later.

Also contributing to the initial success of the new department was Dr. George C. Strawbridge (Figure 15), who trained with Norris in the clinics of Arlt, von Graefe, Helmholtz, Donders and Bowman. In 1870, he also was appointed lecturer on diseases of the eye and ear at the University of Pennsylvania and later was made the first clinical professor of diseases of the ear. He was essentially an ophthalmologist, however, and for a number of years had the largest ophthalmic practice in Philadelphia. Dr. Strawbridge's major contributions were in the field of ophthalmic surgery. He was a pioneer in the use of the trephine in glaucoma surgery, devised a pair of scissor forceps which were useful in operations for artificial pupil, and gained a considerable reputation for his plastic surgery. Strawbridge's career was cut short when he developed a tumor of the choroid in his left eye which subsequently metastasized and caused his death.

Fig. 15. George C. Strawbridge. (Reproduced from copy in The College of Physicians of Philadelphia.)

Norris and Strawbridge trained and attracted a gifted group of ophthalmologists who formed the basis of the department at the university as well as at the Wills Eye Hospital. Included among these were Dr. Samuel D. Risley, whose double prism can still be found in the refracting case of many ophthalmologists; Dr. George A. Piersol, who later was appointed to the chair of anatomy at the university but retained throughout his life an interest in the embryology, anatomy and histology of the eye; Dr. James Wallace, an outstanding refractionist and leader in the field of physiologic optics; Dr. Edward O. Shakespeare, who designed an ingenious ophthalmoscope-ophthalmometer but is best remembered for his collaboration with Walter Reed in the study of typhoid fever in United States military camps, as well as Drs. Burton A. Randall, G. Oram Ring, John T. Carpenter, Jr., and George E. de Schweinitz.

The development of the Department of Ophthalmology at the University of Pennsylvania during the last thirty years of the nineteenth century mirrored the changes taking place on a larger scale in Ameri-

can ophthalmology. Ophthalmology had become firmly established as an important division of medicine and surgery. It had at its foundation Helmholtz' ophthalmoscope, Donder's teachings in physiologic optics, the many brilliant surgical contributions of von Graefe, and Bowman's contributions in eye pathology. Ophthalmology incorporated as well the great strides made during the earlier years of the century in bacteriology, pathology, pharmacology and physiology.

Under Dr. Norris' direction, the microscopic examination of the eye was vigorously carried out and the findings of pathology specimens correlated with the clinical signs. The gonococcus, the staphylococcus, the streptococcus and other organisms could be cultured and identified, although not effectively treated. The antiseptic principles of Lister were kept in mind with regard to infection. Silver nitrate solution was dropped into the eyes of newborn infants as Crede had advised. The treatment of infections was still based upon the use of mercury and other antiseptics. For other forms of inflammation iodides and leeches were employed.

Advances in technology had their impact on the ophthalmoscope, and electric light was increasingly supplanting candle or gas lamp illumination. Roentgen's work with the X-ray was being applied to the eye and William Sweet of Philadelphia demonstrated to the ophthalmologists of the university a useful technique for localization of foreign bodies. The intracapsular extraction of the lens was the most popular cataract technique, and sutures were first being introduced for the closure of surgical wounds of the eye. Major ophthalmological societies had been formed, and before his death Dr. Norris served as president of the American Ophthalmological Society and as chairman of the Section on Ophthalmology at The College of Physicians. Norris continued to direct the department with a firm hand until his death in 1901. His student and friend, Dr. Charles A. Oliver, wrote of him, "he worked indefatigably for his purpose—the good of ophthalmology and his alma mater."

GEORGE E. de SCHWEINITZ

In 1902 Dr. George E. de Schweinitz (Figure 16) was appointed as professor of ophthalmology and chairman of the department. De Schweinitz was forty-three years old and already one of the most eminent American ophthalmologists. He remained chairman of the department until retirement in 1924, and during this twenty-two-year span the most important element in maintaining the department in the front ranks of American ophthalmology was the formidable ability energy and reputation of de Schweinitz himself.

Fig. 16. George E. de Schweinitz. (Reproduced from copy in The College of Physicians of Philadelphia.)

Judged in the perspective of time, his most important contribution now appears to have been writing and editing, particularly his textbook, *Diseases of the Eye*, which was undertaken at the suggestion of his friend, Sir William Osler. This ran for ten editions which spanned thirty-two years. His other major contribution, which still finds frequent mention, is his life-long interest and study of tobacco-alcohol amblyopia and optic nerve toxins. The esteem with which de Schweinitz was regarded during his lifetime is typified by this quotation from Dr. Frederick Verhoeff, of the Massachusetts Eye and Ear Infirmary:

> "De Schweinitz was lavishly endowed both physically and mentally. He had an imposing, yet charming, personality and was the handsomest ophthalmologist I have ever known. He was the most fluent speaker I have ever heard and at the same time one of the clearest. He had a thorough knowledge of ophthalmic literature and often called on this at a moment's notice in discussing papers at medical meetings. He gained such a wide recognition that he was elected president of the American Medical Association in 1916. In spite of his many distinctions he was unassuming in his attitude and was generous in his praise of his colleagues. . . ."

Dr. de Schweinitz was born in Philadelphia on October 26, 1858, the son of Edmund de Schweinitz, a bishop of the Moravian Church, and Lydia de Schweinitz. His family tree, which has been traced to the fifteenth century, went back to Moravian nobility and included a number of prominent men in many different fields of endeavor. His boyhood was spent in Bethlehem, Pennsylvania, and he attended Moravian College, of which his father was president.

He began his formal medical studies at the University of Pennsylvania in 1878, and three years later he was graduated as "first-honor man" with an average of 98.7 and as president of his class. After ten years as a general practitioner he turned to ophthalmology as a "purely practical move" when Dr. William F. Norris offered him a position as his assistant. In the course of the next seven years he received appointments as ophthalmic surgeon to the Children's Hospital, the Orthopedic Hospital and Infirmary for Nervous Diseases, the Philadelphia General Hospital and the Hospital of the University of Pennsylvania.

During the 1890s Dr. de Schweinitz served as the professor of ophthalmology at the Philadelphia Polyclinic (predecessor to the Graduate School of Medicine of the University of Pennsylvania) and at the Jefferson Medical College. In 1902, following the death of Dr. Norris, he was called to the University of Pennsylvania to become its second professor of ophthalmology.

After de Schweinitz assumed the chairmanship of the department at the University, his abilities as an administrator and leader were soon evident. He brought into the department a group of young physicians and encouraged each man to become expert in a subspecialty of ophthalmology. He purchased additional equipment. He remodeled the clinic, establishing a room for retinoscopy, ophthalmometry and refraction, equipping it with the latest model perimeters, a demonstration ophthalmoscope, and a series of booths for ordinary ophthalmoscopic examination (Figure 17). Dr. de Schweinitz established closer ties with other departments in the hospital and took steps to increase the number of patients being seen in consultation in the eye dispensary. He secured the cooperation of the pathology department in accepting a member of his staff, Perce DeLong, as ophthalmic pathologist. At his request the physiology department provided laboratory space for Dr. Francis Heed Adler to carry out research in ophthalmic physiology. Dr. de Schweinitz initiated numerous research projects within his own department. He interested the Ladies Committee of the

Fig. 17. Refraction room in remodeled Eye Clinic, 1905. (Reproduced from copy in The College of Physicians of Philadelphia.)

Hospital in assisting in rehabilitating eye patients before social workers were formally introduced to the hospital.

Following Dr. Norris' death, the number of hours of the medical school curriculum devoted to ophthalmology was significantly reduced. Dr. de Schweinitz sought to use the students' time more efficiently, by trying to avoid repetition of topics covered by other departments. He decreased the size of the quiz sections. He made full use of the Philadelphia General Hospital for the teaching of students. He applied in vain to the board of managers of the hospital for permission to build additional rooms for the eye clinic on adjacent land. His ideas for the department foreshadowed many of the changes and advances which only in recent years have been fully instituted.

For more than a quarter of a century the University was to feel the commanding presence of de Schweinitz. From his early years as an ophthalmologist until close to his death, Dr. de Schweinitz' day began punctually at eight in the morning with his first private patient and was seldom finished before midnight. De Schweinitz never married. "He had no hobby except work," an assistant recalled. "He seemed to rest by working harder at something else." The students and younger staff men stood in awe of his austere manner and military bearing. His more intimate friends and associates came to know the genial and engaging personality which lay beneath his unruffled dignity and seeming aloofness.

A dedicated and colorful group of men staffed the ophthalmology department during the first decades of the twentieth century. Six of them formed the core of Dr. de Schweinitz' staff between 1902 and 1924: B. F. Baer, Jr., John T. Carpenter, Thomas B. Holloway, H. Maxwell Langdon, Edward A. Shumway and Carl S. Williams. Carpenter had been appointed by Dr. Norris in 1895; the other men were selected by Dr. de Schweinitz soon after he took charge. They were all young physicians who had been graduated from the School of Medicine of the University of Pennsylvania. Although several had trained in the clinics of Europe, they all came to look upon Dr. de Schweinitz as their mentor. In addition to their clinic duties, most served as Dr. de Schweinitz' assistants until their own practices were well established. A strong loyalty and devotion to their chief and an interest centered upon the clinical practice of ophthalmology characterized the group.

Dr. Alan C. Woods, a research fellow from 1915 to 1917, did some significant experimental work while at the University. Drs. Francis H. Adler, Alexander G. Fewell and Perce DeLong all began their association with the department during Dr. de Schweinitz' final years as chairman.

Gradually the clinical examination of the eye progressed from that done in the years that Dr. Norris was chief. Gullstrand's slit lamp biomicroscope was increasingly employed. The clinical staff was skilled in both direct and indirect ophthalmoscopy. Electric ophthalmoscopes were available, but Dr. de Schweinitz preferred candlelight or gaslight. Three years before his death he still maintained: "I am convinced that with the ordinary ophthalmoscope with illumination by gaslight, lamp-

Fig. 18. de Schweinitz instruments. (Originals in the Mütter Museum of The College of Physicians of Philadelphia.)

light, or candlelight, fine distinctions and color are better made than with the electric ophthalmoscope."

The Schiotz tonometer had replaced finger tension in the diagnosis and evaluation of glaucoma patients. Visual fields were carefully done and subtle changes were detected and recorded. De Schweinitz and his contemporaries divided glaucoma into acute, subacute and chronic types. They performed iridectomy for acute glaucoma and used mydriatics, principally eserine, for subacute and chronic glaucoma. When medical measures failed, various filtering procedures were used, principally those of Elliot and LaGrange. Congenital glaucoma was occasionally recognized and treated with mydriatics or Elliot's trephine operation (Figure 18).

In spite of the numerous advances in cataract extraction, de Schweinitz preferred extracapsular extraction. Wounds were not sutured, since sutures and needles then available did not seem consistent with delicate intraocular surgery. Some early and generally unsuccessful attempts at corneal transplant were undertaken, and retinal detachments were treated with bed rest and patching. Analgesics, local bloodletting, mercury, atropine and iodides were among the more widely employed remedies for inflamed and infected eyes.

Refractive errors were determined with the use of retinoscopy, the keratometer and subjective refraction. Homatropine remained the most commonly used cycloplegic. Among the prominent patients wearing glasses prescribed by Dr. de Schweinitz was President Woodrow Wilson, whose pince nez became recognized the world over (Figure 19). de Schweinitz' observations regarding Wilson's hypertensive retinopathy and his concern that a cerebrovascular accident might ensue were recorded in his notes.

Dr. de Schweinitz retired as chairman of the Department of Ophthalmology in 1924, at which time he accepted a professorship in the University's Graduate School of Medicine.

Fig. 19. Woodrow Wilson. (Courtesy of University of Pennsylvania Archives.)

THOMAS B. HOLLOWAY

When Dr. de Schweinitz became the professor of ophthalmology in 1902, he offered to Dr. Thomas Beaver Holloway an appointment as assistant surgeon in the eye dispensary (Figure 20). Holloway accepted, and his career in ophthalmology was launched together with his long and intimate association with Dr. de Schweinitz. Dr. Holloway advanced to instructor in 1904 and to associate in ophthalmology in 1923. In addition, he was responsible for the development of the ophthalmology course at the University Graduate School of Medicine and served as its first professor and vice dean of ophthalmology. In 1924 he resigned this position to succeed Dr. de Schweinitz as professor and chairman of the department of the University of Pennsylvania. Dr. Holloway was a quiet, soft-spoken man. He had served in the department for twenty-two years before his appointment as professor. A report on the department soon after Dr. Holloway took charge noted that most of Dr. de Schwainitz' staff "remained on duty" and that the department "continues as previously with few changes." The statement still held when Holloway died in 1936.

Fig. 20. Thomas Beaver Holloway. (Reproduced from copy in The College of Physicians of Philadelphia.)

Dr. Holloway had learned the practice of ophthalmology at de Schweinitz' side, and the treatment of eye diseases while he was chief varied little from that described for his predecessor. The wonder and enthusiasm of being able to view the human fundus oculi were still strongly felt, and the eyegrounds were described with painstaking detail. A former clinical assistant of that time gives this typical recollection:

"My hand still aches at the memory of taking dictation from Dr. Holloway as he described a fundus. Dr. Holloway emulated Dr. Zentmayer in describing every rod and cone to the eager young men anxious to write it all down."

Between 1924 and 1936, the contributions of the department to the knowledge and practice of ophthalmology were predominantly clinical studies, many of which had been started under de Schweinitz. Dr. Holloway was the University's most active contributor to clinical ophthalmology in these years. His studies were centered particularly on the laboratory of perimetry, and he made important observations regarding visual defects in pituitary tumors and other central nervous system disorders. Holloway also studied the pathology of the vitreous and in particular helped to resolve the clinical differences between asteroid hyalitis (to which he gave the name "snowball opacities") and synchysis scintillans. Cooperative research done by Holloway and Verhoeff was described by de Schweinitz as having led to advances in knowledge about pathologic histology of gross macular disorders.

Dr. Holloway was one of the first ophthalmologists to appreciate the value of

moving pictures for scientific and teaching purposes. When he became chief, his vintage Bell and Howell movie camera became a familiar piece of equipment. He soon had an extensive collection of films of various lid, ocular muscle and orbital disorders which he used in his lectures to the medical students and which in 1927 were exhibited to the American Ophthalmological Society.

Dr. Holloway came to hold positions of increasing importance in American ophthalmology. He served as chairman of the Section on Ophthalmology of The College of Physicians of Philadelphia, chairman of the section on Ophthalmology of the American Medical Association, president of the American Ophthalmological Society, and for ten years as editor of its *Transactions*. Among his many honors and citations was an honorary degree conferred upon him by the University of Pennsylvania in 1926.

The closing years of Dr. Holloway's outstanding career were years of increasing prominence for another ophthalmologist: Francis Heed Adler. Working in the field of physiology from his medical school days, Dr. Adler in 1922 turned his attention to the physiology of the eye, serving first as an instructor and later as associate in the Department of Physiology. Simultaneously he was an instructor in ophthalmology. By 1936 he had published sixteen important articles on the physiology and biochemistry of the eye, including studies of the pupillary pathways, the composition and formation of the aqueous humor, the neurogenic control of the ocular circulation, and the metabolism of the retina.

Other outstanding ophthalmologists who participated in the department during Dr. Holloway's tenure included Dr. Alfred Cowan, well remembered for his outstanding work in optics and his widely praised book, *An Introductory Course in Ophthalmic Optics*. Dr. J. Monroe Thorington was a recognized expert on refraction as well as a distinguished explorer and mountain climber. Dr. Alexander G. Fewell was a figure of considerable note in the department. For many years he was an associate of Dr. de Schweinitz and a co-investigator with him in studies of the toxic effects of methyl alcohol on the pituitary body and retina of dogs, on the effects of tobacco on the retina and optic nerve, and on the ocular complications of tuberculosis.

Dr. Perce DeLong was a colorful individual whose background before entering ophthalmology included several years of general practice and neurology as well as experience as second baseman on the Cincinnati National League baseball team. At Dr. Holloway's suggestion, after his training in ophthalmology, he trained with Dr. Frederick Verhoeff in Boston and in 1921 was appointed as an instructor in ophthalmic pathology at the University of Pennsylvania. His career was a long one which included the first report on the use of the electron microscope in eye research. Dr. Wilfred E. Fry began his career in ophthalmology under Dr. Holloway as did Dr. Edward S. Gifford, Jr., for many years chief of ophthalmology at the Pennsylvania Hospital.

Dr. Holloway was a man of considerable foresight and set high goals for his department. Among his papers, he left a typewritten manuscript with plans for a multidiscipline research institute, in which the Ophthalmology Department was to play a major role. The funds needed for this "Laboratory of Industrial and Medical Physics" were estimated at five million dollars. The idea had been suggested to Holloway by de Schweinitz, and it was noted that the head of every department in the School of Medicine had been consulted. The manuscript went so far as to include a list of persons and foundations to be approached for funds. But this dream was never realized.

A more modest appeal was published in the *Pennsylvania Gazette* in an article

entitled "Needs of the Department of Ophthalmology:"

"Laboratory Investigation. Endowments are necessary for a pathologist for routine and research work. Similar funds should be available for a researcher in biochemistry, physiology and physics; the last, as this applies to the many problems concerning light and optics. . . . Through a contribution from a friend of the Department, it was possible to arrange for a special worker for clinical and research perimetry, but a permanent fund for the perpetuation of this work is required."

Dr. Holloway was acutely aware of the progess other ophthalmic centers were making:

"In one of our sister institutions the Department of Ophthalmology is endowed to the extent of $3,000,000. In another, where the available funds were several times larger than ours, a $500,000 laboratory has just become available. Still another has just received a gift of $250,000 'as a starter.' In fact, I know of no institution of equal standing with the University, where the Department of Ophthalmology has been restricted to such limited funds."

Ironically, at this time, Dr. George de Schweinitz, as a trustee and chairman of the Board of Medical Affairs at the University of Pennsylvania, was involved in raising more than three million dollars for the Medical Department and School of Medicine in order to establish the Maloney Medical Clinic, endow the Henry Phipps Institute, and establish a professorship of anatomy. The Department of Ophthalmology, however, in Holloway's words ". . . remained without one cent of endowment for any purpose whatsoever."

Dr. Holloway died of lung cancer on August 18, 1936, after an illness of several months. Dr. George Edmund de Schweinitz survived his former pupil and successor by two years and died on August 22, 1938, at seventy-nine years of age from generalized arteriosclerosis culminating in cardiac failure. The bulk of his estate was left to the Department of Ophthalmology which he headed for so many years.

FRANCIS HEED ADLER

Following Dr. Holloway's death in 1936, Dr. Alexander Fewell (Figure 21) served for a year as acting chairman of the department. In 1937, Dr. Francis Heed Adler was promoted from instructor in ophthalmology to professor and chairman of the department. At forty-two years of age, he was the youngest man to serve as head of that department. He had already gained a distinguished reputation as a research worker, clinician and lecturer. He resigned from his positions as associate in the Department of Physiology and attending surgeon at The Wills Eye Hospital when he was called to fill the chair of ophthalmology at his alma mater.

Fig. 21. Alexander Garrison Fewell. (Reproduced from copy in The College of Physicians of Philadelphia.)

Dr. Francis Heed Adler (Figure 22) was born in Philadelphia in 1895. His parents were Dr. Lewis H. Adler and Emma Augusta Heed Adler. Dr. Adler attended the University of Pennsylvania in the Department of Liberal Arts and then entered the School of Medicine. He was attracted to both surgery and physiology and, even as a student, did considerable research in the latter field under Dr. Merkel Jacobs. In 1919, Dr. Adler was graduated, a member of Alpha Omega Alpha Honor Medical Society. After serving a two-year internship at the Hospital of the University of Pennsylvania, he considered remaining at this hospital as an assistant in one of the two surgery services which were headed by Dr. Charles H. Frazier and Dr. John B. Deaver. Dr. Adler decided instead to enter ophthalmology and accepted Dr. de Schweinitz's offer of a position as his assistant. He served also, at this time, as an instructor of physiology at the University and worked as assistant surgeon in the clinic of Dr. B. F. Baer at The Wills Eye Hospital.

Fig. 22. Francis Heed Adler. (Courtesy of F. H. Adler.)

In 1933, Dr. Adler became attending surgeon at The Wills Eye Hospital, a position he held until 1937. At that time he was appointed chairman of the Department of Ophthalmology at the University, succeeding T. B. Holloway. After taking charge, Dr. Adler initiated a residency program and developed it into one of the best in the country. He revised the medical school course in ophthalmology and won a distinguished reputation as a teacher, both in the undergraduate and graduate medical schools. He continued his work as a leading ophthalmic physiologist, and foremost among his many valuable contributions are his studies on the physiology of the extraocular muscles. His numerous publications covered a wide range of investigative and clinical ophthalmology as well.

In 1931, Dr. Adler published the first significant English text on ophthalmic physiology, *Clinical Physiology of the Eye*. His book, *Physiology of the Eye*, first published in 1950, and the *Textbook of the Eye*, which he first edited in 1938, continue to be published in the tradition he began.

In the words of Gaylord Harnwell, then president of the University, Dr. Adler "developed within his department one of the finest clinical and academic traditions in the School of Medicine."

Shortly after his appointment, Dr. Adler moved the eye clinic to another part of the hospital, providing it with additional space. When the Gates Pavilion was erected on this site some years later, the eye clinic was transferred to the third floor, the location it occupies today. Dr. Adler in addition obtained a fifty thousand dollar gift from John Frederick Lewis and Alfred Lewis to rebuild the eye wards and increase their occupancy to 24 beds.

In the new clinic and wards, the diagnosis and treatment of eye diseases advanced far beyond the methods that de Schweinitz and Holloway had known. The full potential of the slit lamp microscope was realized and the staff became expert in its use. The applanation tonometer came to supplement the Schiotz tonometer in measuring intraocular tension. As gonioscopy was made a part of every glaucoma workup, the classification and treatment of this disease became based upon the anatomical appearance of the filtering angle, and iridectomy was no longer done on an empirical basis. These years also saw the development of powerful new miotic agents which aided in the treatment of chronic simple glaucoma. Early studies on the use of one of these drugs, diisopropyl fluorophosphate (DFP), were contributed by Dr. I. H. Leopold (Figure 23) while a member of Dr. Alder's department.

In the late 1930s, the sulfonamides became the first effective chemotherapeutic agents to be employed systemically for the prevention and cure of bacterial infections. Their value in ophthalmology was quickly realized. Men who were in the eye department in 1939 remember vividly an intern who had gonorrheal pus splashed into his eyes while examining a patient in the emergency ward. Despite the best therapy available, the result of this accident was blindness in one eye and partial loss of sight in the other. By the end of the year the sulfonamides were obtainable and such tragedies would not occur again. Drs. H. G. Scheie, B. F. Souders and I. H. Leopold, working at the University of Pennsylvania, were among the first to study the penetration of sulfonamide compounds into the eye.

The introduction of antibiotics in the early 1940s further revolutionized the treatment of eye infections. Penicillin had been discovered by Dr. Alexander Fleming in 1928 and its first clinical trials run by Dr. Howard Florey and his "Oxford team" in 1941. Streptomycin was isolated in the laboratories of Dr. Selman A. Waksman in 1943, and chloramphenicol, the first of the broad spectrum antibiotics, was isolated in 1947.

Dr. Philip S. Hench and his co-workers announced in 1949 the dramatic effects of cortisone and ACTH in the treatment of rheumatoid arthritis and rheumatic fever. These reports immediately evoked wide interest among ophthalmologists, and these compounds soon proved to be effective in the treatment of uveitis, sympathetic ophthalmia and allergic disorders of the eyes.

In intraocular surgery, better anesthesia and akinesia techniques were developed, and in the late 1930s corneal sutures were finally adopted in Philadelphia. In cataract surgery, extraction of the lens in its capsule became the usual technique. Corneal transplants were done with increasing frequency at the University; and in retinal detachment surgery, scleral resection, im-

Fig. 23. Irving Henry Leopold. (Reproduced from copy in The College of Physicians of Philadelphia.)

plants and encircling devices brought great change and improvisations.

Outstanding among the advances made during those years was the improvement in the training of eye specialists. In fact, of the many contributions the department made during his chairmanship, Dr. Adler prides himself most on the training of new ophthalmologists. Dr. Adler relates:

"When I started in ophthalmology in the early 1920s there were very few institutions where one could train. The Graduate School of the University had just started. There were practically no residencies in ophthalmology anywhere in the country, except probably two or three on the Eastern seaboard. A great many men got their training by going to Europe and taking short courses, particularly in Vienna, where this could be done for a monetary consideration in about three to four months. By 1937, when I was asked to come out to the University, residencies in ophthalmology were being established all over the country, and naturally this is what I wanted to have happen in my own department. There had been no ophthalmology residencies in the University up to that time and, as a matter of fact, none in any other branch of medicine."

The number of patients admitted to the eye ward had fallen off since de Schweinitz's era, and Dr. Adler recalls: "When I told the superintendent of the Hospital that I was going to have two residents in ophthalmology, she asked whether I was going to give them an eye apiece."

The expansion of the clinic and ward provided the facilities needed for the residency program, although Dr. Adler had difficulty at first in keeping twenty-four beds reserved for ophthalmology:

"I had a bitter fight with the head of the Hospital's Board of Trustees over this, as it was insisted that we could not keep beds destined for ophthalmology unless we kept them filled, and he wanted to put all kinds of surgical patients in the eye wards since at that time the wards were not filled more than probably 50 to 60% of their capacity."

"In spite of these difficulties I started in 1937 with two residents, the first being Harold Scheie and Jerry Smith. I continued on with two new residents a year for some time and then changed to three a year as the department grew. The residency training program was three years; the first was spent almost entirely in the graduate school and the last two in clinical work."

The success of this residency program was in no small part the result of Dr. Adler's enthusiasm and inspiration as a teacher. Dr. William O. Lamotte, Jr., speaking for all Dr. Adler's residents, wrote the following in this regard:

"While he can prepare a fine textbook which can be understood by the uninitiated in ophthalmology; while he can deliver, better than most of us, a formal lecture in his field; while he can stand up at a meeting and discuss spontaneously a subject in which he is interested as though he had been up all night preparing it, he is far and away at his best, as all his residents have known, surrounded by six to twelve young men pursuing an idea, a thought, a principle; probing, searching, stimulating, guiding. This indeed is the true teacher; and while at times the resident has looked to others for the learning of a fact or even of a technique, he carries with him from this experience with Dr. Adler a critical and analytical approach which continues to permeate his thinking in ophthalmology throughout his professional life."

As an investigator, Dr. Adler set a high standard for his residents. Much of his work was done in combination with his residents and junior staff. Foremost among his contributions were his studies on the pathologic physiology of strabismus. His interests extended to other aspects of ophthalmic physiology as well. In 1950 he was appointed editor-in-chief of the *AMA Ar-*

chives of Ophthalmology where "...his keen intellect and absorbing interest in both clinical and research ophthalmology found outlet in the demanding duties of this assignment."

Of the articles published in the *AMA Archives of Ophthalmology* as well as in the other eye journals, an increasing number emanated from Dr. Adler's department. One of the most distinguished contributors from the University of Pennsylvania was Dr. Wilfred E. Fry (Figure 24) who had joined the department in 1929. He remained on the faculty until 1958, attaining the position of associate professor of ophthalmology. Included among his publications are a number of studies of unusual tumors of the eye. He also participated in clinical and experimental studies of papilledema formation. As a surgeon, he became noted for his contributions in the field of keratoplasty. From 1942 to 1949 he served as editor of the *Transactions of the American Ophthalmological Society*.

Many other outstanding physicians trained with Dr. Adler and participated in the department during the years of his leadership. These included Dr. Harold G. Scheie and Dr. P. Robb McDonald, presently chief of ophthalmology at Lankenau Hospital and attending surgeon at The Wills Eye Hospital.

Fig. 24. Wilfred E. Fry. (Reproduced from copy in The College of Physicians of Philadelphia.)

During the fourteen years Dr. Irving H. Leopold was associated with Dr. Adler's department (1940-53), he wrote more than seventy articles and became a leading authority on the pharmacology and toxicology of the eye. His investigations helped in establishing the present principles of sulfa- and antibiotic therapy in eye infections. His publications also included observations on the ophthalmic actions of neostigmine, physostygmine, liquid nitrogen mustards, lewisite, BAL, ACTH, cortisone and related compounds, curare alkaloids, radioactive phosphorus and Diamox. Part of this work was done while Dr. Leopold served as research investigator in chemical warfare for the Office of Scientific Research and Development and the Committee on Medical Research of the National Defense Research Council (1942–45).

Other positions Dr. Leopold held while a member of the department included senior attending ophthalmologist, Albert Einstein Medical Center, Northern Division; chief of ophthalmology, Episcopal Hospital, Philadelphia; faculty member in charge of physiology, the Home Study Courses of the American Academy of Ophthalmology and Otolaryngology; consultant to the Surgeon General of the United States Public Health Service for the Training Grants Division, and medical director of the Wills Eye Hospital. He also served as associate editor on the *AMA Archives of Ophthalmology* and contributing editor to the *Survey of Ophthalmology*. Dr. Leopold remains one of the major figures in ophthalmology through his continuing research in ocular pharmacology, his administrative work including chairmanship of the department

at Mt. Sinai Hospital and through his numerous consultationships, advisory positions and other appointments.

Many other distinguished ophthalmologists began their careers under Dr. Adler, their numerous individual achievements being too extensive to review in an article of this scope. These include Dr. Robert M. Day, Dr. Gaylord W. Ojers, Dr. Larry L. Calkins, Dr. William C. Frayer, Dr. H. W. Forster, Dr. Joseph E. Alfano, Dr. Thomas R. Hedges, Dr. H. Peter Kirber, Dr. Richard Ellis, Dr. Melvin G. Alper and Dr. Robert W. Spencer. These men and others whose careers in ophthalmology began as residents at the University stand in the debt of Dr. Francis Heed Adler.

The more than two thousand doctors who were graduated from the School of Medicine of the University of Pennsylvania between 1937 and 1960 gained at least part of their knowledge of the eye and its diseases from Dr. Adler and his staff. Both the medical students and staff of the department benefited from the founding of the de Schweinitz Library in 1938. In 1945 Dr. Adler's official title as chairman was changed to the William F. Norris and George E. de Schweinitz Professor of Ophthalmology as funds were provided to endow and maintain the chair of ophthalmology. The bulk of the endowment came from the estate of Dr. de Schweinitz, which had passed to the University following the death of his sister.

Dr. Adler retired as chairman of the department in 1960 at the age of sixty-five and became professor emeritus of ophthalmology in both the Medical and Graduate Schools. At the time of his retirement, his former residents presented to the University a portrait of their "chief" painted by Franklin C. Watkins. At the presentation, Dr. Adler's career was reviewed and it was then stated:

"While these many accomplishments are important, we can almost assume that they have been a part of the professional life of a man with his degree of intelligence, energy and dedication. What cannot be left out is a word about the man himself; for, while he will be long remembered for his professional achievements, and while his burning interest in the academic phases of medicine and ophthalmology will be perpetuated by his more dedicated pupils, those of us who have worked with him and for him will particularly remember his kindness, his warmth and his human faculty of being one of us."

To the surprise of none of those who knew Dr. Adler well, following his "retirement" he struck out in new directions, serving and contributing to ophthalmology in an undiminished capacity. He has remained active in the practice of ophthalmology and among his many advisory, consulting and executive capacities has served with great distinction as the secretary-treasurer of the American Board of Ophthalmology.

HAROLD G. SCHEIE

In 1960, Dr. Harold G. Scheie (Figure 25) succeeded Dr. Adler as the William F. Norris and George E. de Schweinitz Professor of Ophthalmology and chairman of the department. Dr. Scheie's connection with the Ophthalmology Department had begun in 1938 when he became Dr. Adler's first resident in ophthalmology, and he received at the time of Dr. Adler's retirement an autographed portrait of Dr. Adler inscribed "To my first and best resident."

Dr. Scheie was born in 1909 in Brookings County, South Dakota. Two years later his parents moved their family to Plaza, North Dakota, 60 miles south of the Saskatchewan border. The new home was on the Berthhold Indian Reservation, where, as homesteaders, his parents were allowed to occupy a small tract of land. Here their home was a typical homesteader's sod house. After eight years in Plaza, the Scheie family moved to Warren, Minne-

sota, where Dr. Scheie attended high school and subsequently enrolled in the University of Minnesota in Minneapolis. His independence and self-reliance can be traced to these beginnings.

In 1921, Dr. Scheie entered the freshman class at the University of Minnesota School of Medicine, during which time he lived with and was strongly influenced by Elias P. Lyon, dean of the University of Minnesota Medical School. During these years Dr. Scheie worked as a part-time optician in the Student Health Service with C. Wilbur Rucker, now emeritus professor of ophthalmology of the University of Minnesota.

The completion of Dr. Scheie's two-year internship at the University of Pennsylvania coincided with Dr. Adler's appointment as chairman of the department, and Dr. Scheie began his residency at that time. Dr. Scheie's prolific and important contributions to the medical literature actually began during his years of internship when, in collaboration with Dr. George Gammon of the department of neurology, he reported on the use of prostigmin as a diagnostic test for myasthenia gravis. This was the initial description in the ophthalmic literature of this important and widely used test. In 1940, Dr. Scheie was the first in this country to publish a monograph on the "tonic pupil" (Adie's syndrome). Dr. Scheie's experiments were the first to establish the ciliary ganglion or its postganglionic connections as the site of the lesion. The result of this work was the establishment of the clinically useful Mecholyl sensitivity test (Scheie test) for the tonic pupil, and the research formed the substance of Dr. Scheie's thesis for the degree of Doctor of Medical Science in Ophthalmology. Here we see an example of how Dr. Scheie's work was to touch on many facets of ophthalmology, a fact which his subsequent pre-eminence in ophthalmic surgery sometimes tends to obscure.

Fig. 25. Harold Glendon Scheie. (Courtesy of H. G. Scheie.)

His early publications show his concern with ocular infection. He emphasized the frustration and despair which existed in the early years with seeing eyes lost as a result of infection, and then the revolution in the treatment of these diseases brought by the introduction of sulfonamides and, subsequently, antibiotics. Dr. Scheie was a pioneer in the study of the penetration of these drugs into the eye. Simultaneously with Bellows in Chicago, he developed methods for the study of the entry of local and systemic sulfonamides into the eye and reported his work with Benjamin Souders as co-author in 1941. Other papers written in collaboration with Irving H. Leopold followed.

At the completion of his residency in June, 1940, Dr. Scheie was asked to remain at the University of Pennsylvania and invited by Dr. Adler to join him in private

practice. For a short time he pursued his studies on the physiology of the aqueous and other more clinically related subjects but was called away to serve his country in the Second World War.

Dr. Scheie had joined the Army Reserve Corps and had been commissioned first lieutenant in the Army Medical Corps in 1936. During the next twenty-eight years he gave selflessly of his time and energy in continuing this military career. He was promoted to captain in November, 1940. During 1940 and 1941, Dr. I. S. Ravdin organized the famed 20th General Hospital and sought the best men he could find to represent each medical and surgical specialty. When offered the post of ophthalmologist in the unit, Dr. Scheie enthusiastically accepted. Dr. Ravdin later achieved a worldwide reputation for his contributions in the practice and teaching of surgery and his efforts in medical administration. Dr. Scheie and the others who served with Dr. Ravdin spoke often of his gifted leadership during the war years. Dr. Ravdin in turn has written of Dr. Scheie's magnificent performance of duty. Dr. Scheie's contributions and experiences while a member of the 20th General Hospital are well known. In particular his successful treatment of a corneal injury and severe intraocular hemorrhage of Earl Louis Mountbatten have become part of the heritage and lore of the department (Figure 26).

Fig. 26. During World War II, Captain H. G. Scheie (right) treated Earl Louis Mountbatten, Commander of Allied Troops in the China-Burma-India Theater, for an eye injury. (Courtesy of H. G. Scheie.)

In 1946, Dr. Scheie resumed private practice with Dr. Adler at 133 South 17th Street in Philadelphia. Their secretaries still recall how this office reflected the two men's life styles. At one end was the hushed, placid, efficient calm of Dr. Adler's office day; at the other, the vibrant dynamic bustle of Dr. Scheie's working hours. Some men who trained during these years at the University of Pennsylvania gained additional experience, after residency, in the office of both Dr. Adler and Dr. Scheie. They included Dr. Gaylord Ojers, who continues to serve as an attending surgeon in ophthalmology at the University of Pennsylvania; Dr. George Tyner who went on to the Department of Ophthalmology at the University of Colorado and who is now dean of the School of Medicine at Texas Tech University; Dr. William C. Frayer, who has recently rejoined the department at the University after serving as professor of ophthalmology at Thomas Jefferson University, and Dr. Thomas Hedges, who is professor of ophthalmology at the University of Pennsylvania.

Dr. Scheie's vast experience in ophthalmic surgery during World War II, his understanding of the requirements for efficient patient care, and his abilities as an administrator contributed to his rapidly growing private practice but also made him an able assistant to Dr. Adler in the development and administration of the residency program. The residents worked closely with him on clinical rounds, observed his technique in the operating room, and benefited from his guidance in clinical research. In the laboratory, his clarity of thought, practicality and enthusiasm made him a very effective teacher. The one most important lesson he impressed upon

each resident was his paramount concern for the patient's welfare.

Now began a long period of solid accomplishments in a number of areas of investigation which were to spread Dr. Scheie's reputation throughout the country and, ultimately, the world. Although his particular fields of interest were glaucoma and surgery, he, like von Graefe, Ernst Fuchs, and the great ophthalmologists of previous generations, developed an interest in many other problems that confronted ophthalmology.

Although Salzmann's early work with the gonioscope had been done in 1909, the year of Harold Scheie's birth, and although the technique for examining the angle of the anterior chamber had been perfected years before, it was not until after World War II that its use in the diagnosis of glaucoma was widely accepted. At this time the views of Otto Barkan on the mechanisms of open and closed angle glaucoma began to receive wide acceptance. The gonioscopic classification of glaucoma was given official recognition by the American Academy of Ophthalmology and Otolaryngology at a symposium on glaucoma at the 1948 meeting. Dr. Scheie was instrumental in the formulation of this important symposium and remained a principal figure in the long academic dispute which followed between the proponents of the gonioscopic classification and the adherents of the old neurovascular theory of pathogenesis.

Many of Dr. Scheie's articles during the later 1940s and early 1950s reflected his concern and struggle with the various problems related to glaucoma. He presented an important paper during the American Academy symposium on medical management of chronic simple glaucoma. Much of the work he did during those years, however, concerned angle closure mechanisms. The paper by Scheie and Frayer, "Ocular Hypertension Induced by Air in the Anterior Chamber," demonstrated the mechanism of certain types of secondary angle closure glaucoma and provided a model for the study of primary angle closure glaucoma. The paper by Scheie and Haas entitled "Peripheral Iridectomy in Narrow Angle Glaucoma," was a clear demonstration of the pupillary block mechanism in this form of the disease. A most significant and useful contribution to the diagnosis of narrow angle glaucoma was his logical gonioscopic grading system of angle depth.

Because of the problems inherent in the management of chronic glaucoma—both open and angle closure types—Dr. Scheie critically evaluated the surgical procedures available to himself and others and turned his attention toward an improved technique. The development of such a new method for producing a fistulizing wound is chronicled in the article, "Retraction of Scleral Wound Edges as a Fistulizing Procedure for Glaucoma." The paper has become one of the classic works in ophthalmology, for it provides a simple and effective technique for the treatment of both types of glaucoma and has the advantage of producing very little mutilation of the eye. The method developed by Dr. Scheie is now widely accepted and is generally termed the "Scheie Procedure." Evaluation of the effectiveness of the older methods and a significant and useful modification of the scleral trephine operation are described in a fellow article, "Filtering Operations for Glaucoma: A Comparative Study." The results of this study demonstrated the value of the scleral cautery procedure as compared to trephine.

Some of Dr. Scheie's most important contributions to ophthalmology have come as a result of his interest in infantile glaucoma. His respect for Barkan's view on adult glaucoma has already been mentioned. Also, Dr. Scheie was the first to confirm the effectiveness of Barkan's operation in the treatment of infantile glaucoma.

In January, 1949, following a goniotomy in a nineteen-year-old patient with juvenile glaucoma, he observed the development of a fistula along the course of passage of the goniotomy knife. Since excellent control of pressure resulted, he developed a new operation which consisted of passing the goniotomy knife directly through the sclera in the trabecular region and into the subconjunctival space. This bit of serendipity was called goniopuncture and was first described in 1950. His series of patients with infantile glaucoma is probably one of the largest in the country. Over the years he has evolved a technique for the management of these patients which combines goniotomy and goniopuncture and, occasionally, in refractory patients, iridectomy with scleral cautery. He advocates goniopuncture alone in older children and young adults up to thirty years of age. Dr. Scheie remains preeminent in the field.

Throughout all his years of active association with Dr. Adler in the Department of Ophthalmology at the University of Pennsylvania, Dr. Scheie continually stimulated residents to work with him on small and large investigative projects. He was an active participant in these investigations. Today, as in the past, residents find collaboration with Dr. Scheie a valuable teaching experience from the time the project is formulated until a paper is produced. A large variety of subjects have, in this manner, come under Dr. Scheie's observation. One example is the paper by Scheie and Ojers in 1949, "Choice of a Miotic Agent Following Retrobulbar Anesthesia." Most ophthalmologists were using eserine to constrict the pupil following cataract surgery. By applying basic pharmacologic principles, it was demonstrated that, following retrobulbar anesthesia, eserine was ineffective, whereas pilocarpine resulted in immediate miosis.

His great talent and enthusiasm for surgery received recognition when he was selected to collaborate with Dr. Meyer Wiener in the last edition of Wiener's *Surgery of the Eye*. In this work he described many innovations in the incision and closure of cataract wounds. He was a leading proponent of the perpendicular incision through clear cornea under a corneoconjunctival flap and has repeatedly clarified the advantages and disadvantages of this and various other methods of wound closure. It is important to note that almost without exception all who have the opportunity to learn Dr. Scheie's method of cataract incision during their residency have continued to utilize it in their practices. He also favored a vertical incision through clear cornea in doing cataract extraction after a filtering operation. He called attention to the dangers of stripping Descemet's membrane in cataract extraction.

In the treatment of congenital cataracts, Dr. Scheie has also been a leader. His revival and modification of an older technique for aspiration of congenital or soft cataracts has brought this procedure into general use and most eye surgeons in this country now choose some form of aspiration in preference to the older linear type of extraction. His interest in congenital cataracts led him to an extensive investigation of the problem of cataracts in infants infected with the rubella virus. The technique which gives excellent results in other forms of congenital cataract gave poor results in rubella-infected eyes. This was apparently due to the persistence of the rubella virus in the ocular tissues and led Dr. Scheie and his co-workers to advocate late operation for these patients.

Although his international reputation rests largely on his accomplishments in surgery, Dr. Scheie has made many important contributions in medical ophthalmology. Those who have worked with him know that his mind is alive with the unsolved problems of ophthalmology,

and his astuteness and powers of observation have found the answer to many. A notable contribution to medical ophthalmology was his pioneer work in the treatment of herpes zoster with steroids. The success of this method has been documented in a comprehensive review of the patients seen and treated to date. This was presented in Dublin, Ireland, in the Montgomery Lecture and published in the *Transactions of the Ophthalmological Society of the United Kingdom* in 1970. Here was another instance in which Dr. Scheie was criticized initially; most physicians, however, are now using corticosteroids in the treatment of ocular herpes zoster as well as in severe cutaneous zoster in other areas. This treatment has greatly lessened the complications and overall morbidity of the disease.

A finding of great importance in the field of inborn errors of metabolism is contained in the paper by Scheie, Hambrick and Barness, "A Newly Recognized Forme Fruste of Hurler's Disease (Gargoylism)." In addition to describing a new form of this disease, they demonstrated that not all mucopolysaccharide defects are the same, nor are they all complete. Many of the patients described by Scheie, Hambrick and Barness had previously been considered to have a form of "idiopathic corneal edema" in which corneal transplant was not effective. The mucopolysaccharide metabolism of these patients had not previously been investigated. This form of mucopolysaccharidosis has been named by McKusick "Scheie's syndrome."

Even before assuming the professorship, Dr. Scheie was aware of the necessity to build further and expand the Department of Ophthalmology of the University of Pennsylvania if it was to compete successfully with other large centers of ophthalmology. In 1949, Dr. Scheie was appointed as ophthalmologist to the Children's Hospital of Philadelphia and was instrumental in developing this into an important training center for pediatric ophthalmology. The erection of the Philadelphia Veterans Administration Hospital in 1952 brought to Philadelphia an additional important eye facility. Dr. Scheie's appointment as the chief of Division "A" Ophthalmologic Service at the Philadelphia General Hospital in 1959 added this valuable service with its large number of patients, clinics and wards to the University's facilities.

In 1952, the ophthalmology wards, clinics, and surgical suite of ophthalmology at the University Hospital were concentrated on the third floor of the Gates Building. With his appointment as chairman, Dr. Scheie moved his offices to the University, making himself available at all times to the residents and putting him just a few steps away from the surgical area located just outside his office. In addition, an artist's studio, photography room and record room were made possible by the Margaret Grundy Memorial Fund.

An important contribution to ophthalmologic teaching was the streamlining and revision of the graduate course in ophthalmology by Dr. Scheie in 1963. The Graduate School of Medicine of the University of Pennsylvania had its start in 1865 when facilities were needed to give advanced training in all branches of medicine and surgery to graduate doctors as well as to offer new courses for veteran practitioners. Later, as it became necessary for a medical specialist to have complete knowledge of bacteriology, pathology, pharmacology and physiology, courses became more elaborate and a large faculty evolved. In the early 1960s, however, there was growing dissatisfaction with antiquated and cumbersome curriculum. This situation was remedied when the Graduate School of Medicine was replaced by a Division of Graduate Medicine within the School of Medicine. Under this new arrangement, the chairman of the

Department of Ophthalmology in the School of Medicine became responsible also for graduate teaching. Dr. Scheie established a modern curriculum for the new school and shortened the course of instruction from nine to four months. Outdated courses were deleted and new ones added. At present, outstanding teachers in ophthalmology from numerous institutions in this country are brought in for varying periods of time. The success of the course is reflected in the full attendance each year by doctors from all over the country and the enthusiastic comments and critiques from those attending.

Patient care, resident training and research are the principal functions of any ophthalmology department, and advances have been made in all three fields since Dr. Scheie became chairman. In 1965, there were twelve residents and fellowships per year; by 1970, this figure had doubled. Presbyterian Hospital was incorporated as an integral part of the eye program. The length of the residency program has been increased to forty months to include the basic science course. Increasing numbers of residents have chosen to take one or more years of additional training in pathology or other basic sciences. Two weekly events of long tradition demonstrate the high caliber and the excellence of their training. These are the department's "grand rounds" held Wednesday afternoons, and the Saturday morning conferences conducted by Dr. Scheie.

The research space that Dr. Scheie was able to win for his department in the early years of his chairmanship attests to his tenacity, perseverance and persuasive powers. Dr. Scheie secured more than 10,000 square feet of laboratory space for the department and established important research laboratories headed by full time M.D. and Ph.D. recipients in anatomy, physiology, virology, immunology, molecular biology and pathology. These disciplines formed a firm basic science foundation for the department and have been integrated into the residency training program. Dr. Scheie has formulated and directed the basic research program so that it bears directly on the problems involved in corneal disease, retinal disease and other facets of clinical ophthalmology.

By strengthening the resident training and research areas, Dr. Scheie has also strengthened the field of eye training offered to medical students. During the third and fourth years, medical students attend lectures and spend time in the eye clinics. All but two of the lectures are given by Dr. Scheie himself and feature his extensive slide and motion-picture collection. A set of lecture notes written by Dr. Scheie and the staff was first printed in 1960 and was given to each student without charge. This outline has been augmented by Scheie and Albert in the rewritten 8th edition of *Adler's Textbook of Ophthalmology*.

The department that Dr. Scheie rebuilt, his private practice, the clinic practice, the private beds, the wards, surgery, the teaching facilities, and the research laboratories outstripped the physical plant that housed them soon after he became chairman. As early as the mid 1950s, in fact, Dr. Scheie envisioned an ophthalmologic institute. A stimulus to this idea was a gift by Senator Joseph R. Grundy, given in appreciation of the care and consideration Dr. Scheie had given him in the treatment of his eye disease. A friendship grew over the years between Dr. Scheie and the senator that went beyond the doctor-patient relationship. The Senator's bequest sparked the beginning of the effort to build an institute (Figure 27).

In 1966, a generous gift was made to Dr. Scheie by another public-spirited anonymous donor. This was a momentous turning point and the institute became a reality. Two stipulations accompanied the philanthropic gift: 1., the eye institute should be

Fig. 27. Senator Joseph R. Grundy. (Reproduced from photograph belonging to H. G. Scheie.)

structured at the site of the Presbyterian-University of Pennsylvania Medical Center; and 2., it was to be named the Scheie Eye Institute. With this donation as a nucleus, an increasing number of outstanding and concerned persons gave additional contributions which resulted in a twentieth-century phenomenon—an institute built entirely with private funds and not relying on government support. The former residents of the department alone pledged over a quarter of a million dollars, demonstrating their loyalty and confidence in the department. The firm of Vincent G. Kling & Partners designed a uniquely functional and beautiful building (Figure 28). Those working in the institute have facilities which enable them to treat up to 50,000 outpatients per year and perform 3,000 operations—double the previous capacity. The cylindrical building has twenty-four examining rooms, a retina clinic, and clinical and basic research laboratories. There are thirty-eight rooms for between fifty-seven and seventy-six inpatients. These rooms provide for the maximum comfort of the eye patient, each having its own bathroom and shower and large screen television set with adjustable dimming switches. Teaching facilities are unparalleled anywhere else in the field of ophthalmology. The Scheie Eye Institute was formally dedicated on October 12, 1972, in a ceremony attended by the leading figures in ophthalmology from all over the world at which Lord Mountbatten gave the dedication address (Figure 29). In the short period since then the Scheie Eye Institute has become a landmark in the city of Philadelphia and in the world of ophthalmology.

But as great as the physical plant may be, those of us who know Dr. Scheie believe that the man himself, through his reputation, his contributions and his teaching, will outlive the steel and stone of the edifice that he has brought into being.

CONCLUSION

At the time of its one hundredth anniversary, the Department of Ophthalmology is again at an exciting crossroads, a time of critical decisions and choices. The department has developed into one of the outstanding clinical centers in the country with facilities and equipment second to none. Among the skilled clinicians on the staff, in addition to Dr. Scheie, are Drs. William Frayer, Alan Laties, Peter Morse, Thomas Hedges, William Burns, Myron Yanoff, David Schaffer, Zarko Vucicevic, James Katowitz, David Kozart, Charles Nichols and Louis Karp. With the presence of Dr. Alan Laties in anatomy and neuro-ophthalmology, Drs. William Frayer, Myron Yanoff and Louis Karp in pathology, Dr. Charles Nichols in pharmacology, Dr. Zarko Vucicevic in ultrasonography, Dr. John Rockey in immunochemistry and molecular biology, and Dr. Herbert Blough in biochemical virology and membrane research, a well balanced and distinguished research staff exists as well.

Our hope for the future of the depart-

Fig. 28. Scheie Eye Institute. (Courtesy of Scheie Eye Institute.)

Fig. 29. Color guard, First City Troop, Lord Mountbatten (in British Naval uniform) and Martin Myerson, president of the University of Pennsylvania, walking in academic procession to tent for Scheie Eye Institute dedication ceremony, October 12, 1972. (Courtesy of Scheie Eye Institute.)

ment can be stated in de Schweinitz's words of a half century ago: "In all respects the work of the Ophthalmic Department of the University is maintaining and advancing the reputation established by its founders."

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A Silver Anniversary for Elliott H. Morse

Some twenty-five years ago, Elliott H. Morse (Figure 1) came to The College of Physicians of Philadelphia. They have been eventful years.

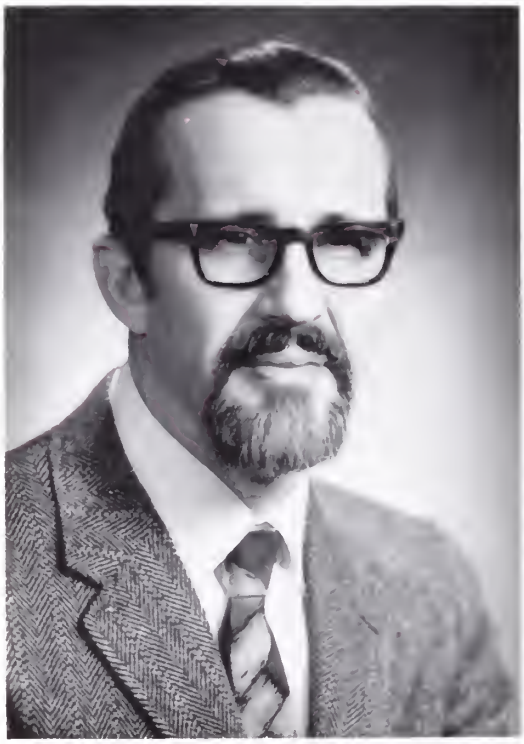

Fig. 1. Elliott H. Morse, Librarian of The College of Physicians of Philadelphia.

After five years as administrative assistant to W. B. McDaniel, 2d, he was given responsibility as librarian, for recent and current materials, while "McD" turned his whole attention to the Historical Collections. The great proliferation of postwar medical publishing had begun, as had an upward spiral of costs, so that problems of increased demand exacerbated long-standing inadequacies of staff and equipment. During this strenuous period, some new solutions were found to some old problems: the Medical Documentation Service was established to provide detailed reference work on a fee-for-service basis, yielding, if possible, income for the College at the same time; a local chapter of the Medical Library Association was formed at Elliott Morse's initiative to improve communication and raise standards of medical librarianship; and, after many difficulties, the College became the second Regional Medical Library of the National Library of Medicine, serving Pennsylvania, Delaware, and southern New Jersey.

He bore the brunt of the day-to-day, on-the-spot problems of planning and erection of the College's stack addition in 1955–56 and has since coped with innumerable administrative problems, physical, bibliographical, and organizational. His interest and devotion have been recognized by his own profession in the presidency of the Medical Library Association, which he held in 1969–70.

The College owes him and his Quaker conscience a considered vote of thanks for his professional skill and his dedication. He has taken our motto as his own, not hesitating to remind us of it when we were in danger of forgetting: *Non sibi sed toti*—Not for ourselves but for all!

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The Automobile as a Weapon[1]

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INTRODUCTION: S. Weir Mitchell (1829-1914), Philadelphia Neurologist, Poet, Civic Leader

The triennial occasion of an established lectureship obligates us valuably, as in this S. Weir Mitchell Oration, to review the breadth and the relevancy of accomplishments made by physician leaders whose personal contacts ended generally before the memories of those assembling in his honor. Often the writings of such individuals, both scientific and otherwise, were prolific but seemingly entombed in the framework of bygone eras. Review of their work, however, may reveal unusual relevancy as in the case of Dr. Mitchell. Without question, Mitchell was an individual of class attainment in the most constructive connotation. He was a third generation physician. His father had maintained a highly responsible practice in Philadelphia and left significant medical publications attesting to his clinical curiosity and acumen. His grandfather, who practiced in Scotland, had also left a major imprint on those about him and his family descendants. S. Weir Mitchell built his contributions first on technical excellence and mastery of his chosen field, neurology. He did not, however, circumscribe his efforts to immediate care of the large numbers of patients coming to him. He extrapolated many principles of splendid medical care to responsibilities in terms of the environment, air, water and sanitary conditions. His calls for attention to environmental contamination are as timely today as when written a century ago. In his approximately two hundred fifty scientific articles, he identified reflex sympathetic disturbance following peripheral nerve injuries, sometimes referred to as causalgia, from the studies of large numbers of civil war veterans. This was a third of a century before Sudeck of Germany wrote his classic papers in 1900-04. Mitchell made a major contribution in development of "rest-therapy" in psychiatric illnesses. He carefully documented the deterioration of mental attributes both in his case histories and in his literary productions. A few of the latter ended up as significant novels and plays of the time. Some thirty volumes of poems and collected stories were published.

[1] S. Weir Mitchell Oration XX, The College of Physicians of Philadelphia, November 7, 1973.

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As an ophthalmologist, I appreciate the care with which he documented trauma to the chiasm and the second cranial nerve. More surprisingly, he studied the experimental role of sugar in the production of cataracts in rats and also made extensive reports on the role of refractive errors and accommodative disturbance in headache. His studies on snake venoms constituted the first and classic American thrusts into toxicology.

Tonight we are within the magnificent architecture of this building largely because of the personal relationship of S. Weir to Andrew Carnegie. Even the doctoral robes worn by the officers of the College are evidence of his somewhat formal, as well as formidable, contributions to responsible life in medicine.

THE CRASH SCENE

The current automotive injury scene shows very few accidents but increasing numbers of crashes. The term *accident* should be excluded from automotive morbidity and mortality studies, in keeping with Webster's definition, "an unexpected happening not due to any negligence." Such terminology negates a responsible search for causes. On the other hand, Webster defines *crash* as "a breaking to pieces by collision; a sudden failure or collapse," and this term is far more appropriate to productive analysis. Even Voltaire helped in today's analysis by saying, "There is no such thing as an accident. What we call by that name is the effect of some cause which we do not see." Faint reassurance may be expressed from recent U.S. statistics suggesting fewer crashes per hundred million miles driven. These figures, however, are based on gross sales of gasoline and are subject to criticism. Deaths per year from road crashes have been steadily mounting in the United States with the single exception of 1970 when deaths dropped to 54,800 from the 1969 figure of 56,000.

Motor vehicles have been used as weapons since shortly after their invention. Numerous citations can be found in criminal records where individuals have been murdered by being struck down and even repeatedly run over by a driver. Our prohibition era, particularly, saw the motor vehicle used for incineration of a victim in hopes of destroying evidence of antecedent crime. Fire is a complicating factor today in less than 0.1% of crashes.

In the late 1950s A. L. Moseley, Ph.D., working in the Boston area, initiated careful autopsy of traffic fatalities, the involved vehicle, the highway scene, and even the behavioral pattern of the deceased prior to crash (1). His controversial studies documented at least a handful of single car, single occupant fatalities, without environmental difficulties, without evidence of braking, and without evidence of mechanical failure in the vehicle. Validation of such suicide follows more particularly when imprints of the accelerator are found on the shoe sole of the deceased driver or when suicide notes are uncovered. Pedestrian leaps into the path of automobiles have been documented from overpasses as well as curbings.

Pathologic and forensic studies of these victims must be more wide-ranging than classical work at the autopsy table and toxicology laboratory (2). Today's medical examiner must bring the complex vehicular and environmental fields into correlation with severity notations of tissue damages. Numerical suggestion of use of the motor vehicles for suicide is seen in the ratio of passenger vs. commercial vehicle crashes into fixed objects. William M. Petty, M.D., medical examiner of Jefferson County, Kentucky, reported passenger vehicles involved in these circumstances six times more frequently than non-passenger vehicles in his 1972 report (3).

Study of etiologic mechanisms in death and injury from the vehicle runs contrary to the usual medical diagnostic

effort seeking a single causative factor. Non-suicidal crashes commonly result from multiple etiologies which must be identified and validated (4). It is then necessary to arrange them in time sequence and significance. These factors are often obscured at the crash scene and within the vehicle as well as in the body of the deceased. A clever automotive engineer is needed for thorough autopsy of the vehicle, and extensive photographic studies are needed to integrate the mechanisms operative at the road scene.

The dissecting approach of Moseley grew into more detailed format on creation of the U.C.L.A. Trauma Research Group in 1962. Staff workers from the Schools of Medicine and Engineering have conducted about 1,200 detailed crash investigations. Appropriate studies of crash fatalities, however, occur in relatively few of the nearly 60,000 deaths per year in this nation, but are being generated by twenty formally created, multiple-disciplinary accident investigation teams and a handful of other medical examiners seeking, as in the title of Arthur Haley's book, *The Final Diagnosis.*

These extensive medical and engineering autopsies have been formalized since 1970 by the National Highway Safety Administration of U.S. Department of Transportation and the Motor Vehicle Manufacturers Association (formerly Automotive Manufacturers Association) with data storage at the University of Michigan Highway Safety Research Institute in Ann Arbor, Michigan. As of October, 1972, over 4,500 clinical investigations of highway crashes have been completed by the twenty teams. These record over 800 items of information for each case. The majority of items (576) concern the vehicle and the environment including 38 descripters of damage sustained by the vehicle. There are 60 variables coded for each occupant and these are based on the American Medical Association Abbreviated Injury Scale (AIS) (5). This project is being continued in the field through calendar year 1973 and the initial five-volume report published by the Department of Transportation is available as a public document (6). Computer searches and variable analysis may generate meaningful correlations and new identification of causations in the year or two ahead.

The constructive correlation of medical factors with engineering concepts is evidenced by increasing human factors literature such as the recent medical text for practicing engineers, *Human Anatomy, Impact Injuries, and Human Tolerances*, edited by Donald F. Huelke and published by the Society for Automotive Engineers, Inc., January, 1970.

The 1966 legislation of federal activity into automotive deaths and injury created the National Highway Traffic Safety Administration as a Division of the U.S. Department of Transportation. Literally hundreds of studies have been commissioned by this agency with often uncertain results. Goals and standards have now been crystallized and are under steady advancement. Current major goals are:

1. crash survivability;
2. experimental safety vehicle design;
3. improved roadway environmental safety design;
4. driver performance characteristics, including alcoholism;
5. emergency medical services.

RESTRAINT DEVELOPMENTS AND ENGINEERING IMPROVEMENTS

Judson B. Branch, present chairman of the Motor Vehicle Safety Advisory Council, president of Allstate Insurance Company since 1957, and recipient of the Alfred P. Sloane Award for Highway Safety, has directed a major emphasis of his company and his life toward rendering the crash scene more tolerant of

human errors. He labors for survival by design rather than by happenchance.

Previous Department of Transportation data failed to indicate real reduction in injury or death by modest changes affected in licensing procedures or by driver education programs in the communities where these are most widespread.

Data from specially trained police investigators under the Cornell Automotive Crash Injury Research Laboratories from the fifties and sixties have clearly shown that seatbelts almost eliminate the fatal problems of partial ejection and also the risk of total ejection which increases chances of fatality by 500%. ACIR data on rural crashes confirm that ejection deaths could be reduced 80% by the use of belts in crashes which they analyzed. Although Barney Oldfield began strapping himself in as early as 1908 and a few safety minded physicians and others followed suit in the 1950s, it was not until 1955 that large scale options were produced by Ford and Chrysler. Public acceptance, however, has not been great, although safety pressures in 1968 required installation of the devices in all new models.

Current surveys estimate seatbelt usage at around 15% of drivers in the East and up to 30% in the West. Shoulder belt use at best is no more than 4% in the United States.

Because Americans clearly demonstrate they do not like to be restrained even in the face of telling medical evidence, the Department of Transportation has mandated passive restraint systems for all cars sold in the United States beginning August 15, 1975 (7). Researchers have rushed to the concept of padded or cushioned cars, variously activated security blankets, and even a safety bar that moves upward across the leading edge of the seat possibly placing the occupant's knees against his chest in what the designer calls "the injury restraint fetal position." The Department, however, looks to air bags as their solution and is consistently pressuring the concept much as the sanatorium and cold air treatment for tuberculosis was forced into medical therapy with scant evidence early in the century. Neither system comes with field experience or controlled data. Several federal fleets were equipped with air bags in 1972-73 and Allstate Insurance Company is placing trial bags in its 4,600 cars belonging to adjusters and managers.

A very real gain in the fight against facial lacerations and lethal vascular injury of the head and neck came in 1966 with introduction by auto-manufacturers of high penetrance resistance (HPR) windshields (8). Ophthalmologists share with plastic surgeons a real realization that lid and facial injuries have been reduced by doubling the previous 15 mils. thickness of the plastic interlayer in the windshield and loosening the plastic-to-glass bond which permits up to 8 inches of deceleration space for the human head. One insurance company has analyzed claims and tabulated a reduction of 15 to 25% in windshield-related trauma to drivers and right front seat passengers. Even further refinements in windshield characteristics are available at the engineering level (9).

Similarly, the collapsing steering column, introduced in 1967, has been documented to reduce fatal thoracic and cardiac injuries (10).

High speed car-to-car crashes have also been reduced by divided interstate and major freeways. Such crashes roughly have five times as many fatalities as single vehicle collisions.

CURRENT SIGNIFICANCE OF VISUAL PROBLEMS IN PENNSYLVANIA DRIVERS

Crash analysis by the Pennsylvania Department of Transportation for the

calendar year 1971 indicates 81,696 crashes causing 667 deaths, 1,604 bodily injuries, and 59,984 cases of property damage in this state. Alcohol was the largest identifiable causative factor among the fatalities (318 out of 667) and related to 5,915 crashes which caused bodily injury or property damage. Visual factors had prime causative identification in 72 deaths, 1,604 bodily injuries, and 3,639 cases of property damage. Such efforts to identify causative data underline revised visibility (FMVSS 111) and illuminating (FMVSS 108) standards which the National Highway Traffic Safety Administration is seeking to put into effect in 1973.

Pennsylvania Physical Examination Program

Required physical and visual examination of Pennsylvania drivers was instituted in June 1960, with random re-examination beginning in November 1960. There now are approximately 8 million licensed Pennsylvania operators and initial efforts at hand recording of data became so overwhelming that the project was temporarily discontinued from March 1964 until some electronic data processing was evolved in August 1965. By the end of 1971, approximately 3 million prelicensing physical examinations were administered and of that number 4,143, or 0.137%, were denied Pennsylvania license for medical reasons.

Under the first re-examination program, November 1960-March 1964, for persons holding Pennsylvania licenses, there were 806,918 drivers examined, and of this number 30,131 or 3.7% had their licenses suspended for medical reasons. With the reinstitution of the physical examination program in August, 1965, through July, 1972, 1,508,610 more drivers were examined and from this collective 2,375,528, an additional 33,522 or a total of 63,653 (nearly 2.7%) have been suspended for medical reasons. This percentage of pathology detection is about 20 times greater than the abnormal findings on prelicense examination. During these two periods, 16,207 operators voluntarily surrendered their licenses, nearly 5,000 were found to be deceased, and nearly 10,000 examination notices were returned "unclaimed."

The physical examination for visual acuity has resulted in Bureau notifications to slightly over one-half million operators (579,597) or about 10% of all examinees. Restrictions to daylight driving only were placed on 3,004 drivers on the basis of 1., ophthalmic reports indicating poor night vision or 2., limitation of optimally corrected vision at the level of 20/50 to 20/60 using both eyes together. An additional 50,333 drivers have been required to add outside mirrors because of 1., vision correctable to no better than 20/100 in one eye, or 2., gross hearing deficiency (inability to distinguish normal conversation 10 feet to the rear of the candidate). The 11-member Medical Advisory Board, including one opthalmologist and one optometrist, recommended in 1970 horizontal form field requirements of 140°. This can be met by the one-eyed driver but because of man-hour and cost requirements has not been implemented yet.

Most of the actions taken thus far have been the specific result of the driver re-examination program primarily since its initial computerization in August 1965. Without this program, most such deficiency would have continued to pass unnoticed. Of the 33,522 (or 2.22% of 1,508,630) who have had driving privileges cancelled for medical reasons since August of 1965, there were 1,269 rejected for visual defects. The most common medical cause for suspension was neuropsychiatric disorders which roughly accounted for seven times more

rejections than vision. The role of aging as it affects this group of Pennsylvania drivers, including their visual problems, was evaluated recently by Freeman (11) with strong support for performance ability rather than age *per se* as the basis for identifying driver limitation (12).

Because of the examination program, about 50,000 operators a year are advised of visual deficiency and thus a public health measure is an incidental component of the program. Drivers failing the visual examination as well as those passing the minimal standard of the 20/40 but showing less than 20/20 with correction, are advised to have opthalmic follow-up care and may be required to submit periodic medical reports from their eye physician to indicate that vision is not progressively failing.

The 20/40 level of minimal acuity is selected because the lettering on freeway control signs is sized to be read by a driver with acuity of at least 20/40. Additionally the engineering of these signs takes into account the need to read them at usual traffic speeds on clear days and sufficiently in advance to make appropriate vehicular maneuvers.

Although Pennsylvania has maintained only one classification of driver license rather than the three proposed by the American Medical Association (13), the Royal Board of Health in Great Britain, the U.S. Department of Transportation and the U.S. Public Health Service (14), new standards were placed into effect at the end of 1970 for the 11,000 or 12,000 school bus drivers of the Commonwealth. The Medical Advisory Board to the Department of Transportation is currently in the third revision of these standards which should be considered as "Class 1." At present, however, the maximum central acuity requirement is only correctable vision to 20/40 in the better eye and no worse than 20/50 in the fellow eye. A school bus driver also must have a form field or horizontal recognition field of not less than 160° with both eyes open. Further, he must be able to distinguish traffic control colors of red, green, and amber and be able to "exercise distance judgment in the driving task." This more liberal interpretation has replaced earlier plans specifying Keystone telebinocular types of stereopsis measure, or tests of "space perception."

Data currently computerized for Pennsylvania licensed drivers affords some correlation between visual acuity, monocularity and crash or violation records. Among Pennsylvania drivers operating with visual restrictions, 15% have crash records at this time. This figure seems higher than that to be anticipated in the licensed driving population of the Commonwealth.

Five other approaches are in use to validate the significance of visual impairment in driving:

1. Paired studies matching control groups against drivers having systemic disease associated with eye defects. Campbell and Ellis (15), in a five and a half year study of 346 diabetic drivers within Prince Edward Island Province, Canada, matched them by age with non-diabetic drivers and found nearly twice as many crashes and more than twice as many major convictions among the diabetics. Though vision was not reported in this study, which included licensed drivers throughout the entire driving age, their sampling showed a greater than linear increase in numbers of subjects throughout successive pentades of life. Inherently, both impairments of acuity and mesopic visual function must be over-represented among their diabetics.

2. Autopsy study of eyes and visual pathways following crash deaths and correlating the side of visual loss with direction of lethal impact. This "after the fact" technique has been reported by Freytag and Sachs of the Medical Examiner's Office in Baltimore who studied

ocular and visual pathway defects in five pedestrians and two drivers killed in Maryland (16). Necropsy findings of lesions, which would have been manifested by poor vision to one side, showed specific correlations with carefully reconstructed directions of injury. Such autopsy findings, though not reflecting rate or incidence data, support the limitation created by visual field impairment or monocularity.

3. Case records of surviving drivers referred to medical advisory boards. Significant numbers of such drivers ultimately coming to the Medical Advisory Board of Pennsylvania recurrently illustrate successions of injuries, property damages and fatalities in crash experience associated with monocularity or visual field impairment (17).

4. Studies of monocularity versus binocularity in paired groups. My report (18) of 1968 identified monocularity in 8% of 991 drivers called in for a medical review following multiple crash histories. In a "control group" of 21,000 private patients seen in my office for eye care, 423 or only 2% had monocular blindness. Thus, monocularity seemed to be over represented by a factor of four in this sample of crashing drivers.

5. Studies of driver performance on the road with subsequent identification of the visually normal and visually limited drivers. Liesmaa (19) reported in 1973 road observation of 1,021 drivers for three types of driving errors and then performed roadside examination of visual function with Rodenstock equipment on each one. Driving errors studied were a., overtaking when another vehicle is approaching, b., crossing the lane divider or overtaking on a curve, c., careless entering major roads. Identified as involved in these three classes of errors were 167 drivers, while 854 other drivers constituted control material. Among those overtaking when another vehicle is approaching, there were 20% who showed significantly impaired acuity and only 6.4% with impaired acuity in the control group. No visual difference could be identified among 64 drivers involved in carelessly crossing the lane divider. However, among 25 drivers showing dangerous entrance to major roads, 12 to 48%, depending on criteria, had visual limitation, two were blind in one eye, one had major visual loss and nine had slightly decreased visual acuity (below the level of 20/30). In general, slightly decreased visual acuity did not correlate with the three identified types of inappropriate driving.

NEW DEVELOPMENTS IN STANDARDIZATION

Though the American citizen typically resents regimentation, we are all benefited by the evolution of widely accepted standards. In this nation we have agreed to drive on the right side of the road, much as we agreed following World War I to accept a standard pair of parallel prongs for all electrical plugs and a standard keyboard for all of our typewriters. Though the advent of Federal Motor Vehicle Safety Standards subsequent to 1966 have produced both problems and progress, we also must strengthen and maintain the voluntary standard-setting consensus efforts formalized in our American National Standards Institute, as based in New York City. Though this was originally established in 1918, under the name of American Standards Association (ASA), there is some confusion today since the revised name was adopted as recently as October 1969. The new name indicates the essentially nationwide character of these standards. Standards for medical fitness to drive (20) and for quantitation of injury have been issued somewhat on the basis of antecedent documents from the American Medical Association but with the possible advantage of a much

broader consensus basis than physicians alone. This may enhance wider adoption of such extra-legal standardization. Often these acquire the effectiveness of law by citation in statutes of the various states or by reference in case law. Currently effective Federal Vehicle Safety Standards now cover such diverse problems as flammability of interior materials, door latch effectiveness, intrusion of passenger compartments, visibility needs, lighting systems, and more recently visual fields (21).

VISUAL FIELD STANDARDS

Fourteen states have now added requirements to measure horizontal form field awareness. Plain wall-mounted tangent screens, small hand held (Schweiger) perimeters, or simple arc testing devices on all visual screening equipment are available to carry out this element of testing. The effectivity of such screening examination, however, may be negated by current hair styles of young ladies which obscure the lateral orbital regions, or by heavy spectacle frames. Strong concave (myopic) spectacle lenses further create illusory displacement of images toward the center of the lens when light passes through the prism-like edge of the lens. Strong convex (hyperopic) lenses are optically worse by creating a negative ring scotoma about their edges. This donut of visual deficit may be several degrees wide and increases with the dioptric power of the lens. A heavy eye wire or spectacle temple compounds this lens-generated edge defect with any strength of lens.

Limitations of field defects are enhanced by "speed smear" as first described by Hockenbeamer (22) in 1952. He demonstrated reduction in the effective binocular visual field from the normal width of 180° to 200° to about 100° at the speed of only 20 miles per hour, and down to 95° at 30 miles per hour. At 40 this further drops to 70° and at 60, it is 42°. The problem is specifically illustrated by the monocular driver. Kearney in a citation of a California study of 33 fatal intersectional crashes found poor or absent vision on the side of the crash in 30 cases (23).

STATE MEDICAL ADVISORY BOARDS

The Federal Highway Safety Acts of 1966 mandate the operation of Medical Advisory Boards to the driver licensing authority in each state as had been done previously in twelve states. These Federal teeth, however, only echo the 1925 report, "Visual Standards for Operating Motor Vehicles," which was approved by the A.M.A. Section on Ophthalmology and then endorsed by the A.M.A. House of Delegates. This report (24) not only recommended the now well-established 20/40 minimal visual acuity standard, but further states "in each state, there shall be a board of physical licensure . . . consisting of two general practitioners or surgeons and one ophthalmologist." Now forty-eight years later less than ten states are without such medical advisory boards and the effectivity of their decisions is steadily increasing.

These must be operational and useful in each state to avoid the statutory penalty for their absence. Failure to activate such a board may lead to withholding of up to 10% of highway construction funds from an individual state. Where osteopathic physicians render a major segment of primary or general medical care, they should be included. In most states it is also helpful to have one responsible optometrist for liaison with these active, though not medically oriented, workers in vision.

Though physicians can not, must not and do not issue, rescind or restrict operators' licenses, it is the inescapable obligation of physicians to identify those

chronic or irremedial defects which create *driver limitation*. This may be a single major defect or the aggregate effect of several minor limitations.

PHYSICIAN RESPONSIBILITIES IN PREVENTION AND TREATMENT

Exemplary and Defensive Driving

The physician driver must, by example, illustrate optimal safety equipment and tactics in his automobile. The physician thus creates an enduring "soft sell" to his immediate family and passengers, and affords quiet leadership whenever he enters a parking lot or is observed on the road. Defensive driving must not only include avoidance of errant vehicles and the provision of maneuvering space, but at times requires the thoughtfulness of the professional race driver in a controlled crash-out, creating necessary space to avoid a foreseeable chain crash or fatality. On a course, such as the Indianapolis 500, the professional driver may necessarily elect a controlled crash, impacting his rear quadrant against the wall so as to salvage maneuverability with his front wheel steering gear. On the highway this may occasionally mean that you and I move laterally across a shoulder, soft mud, or a ditch to make way for an unskilled driver, perhaps oblivious to space requirements for passing or correction of a skid.

Critical Purchasing of New Vehicles

Unquestionably the heavier car decelerates in a crash more slowly and provides more linear room for deceleration of occupants facing second impacts within the vehicle. Ecology, at the moment, favors the small and light-weight vehicle. The low-poundage purchase, however, firmly mandates three-point harness restraints at all times. In direct confrontation, however, with a vehicle weighing twice that of your own, it is difficult even for the properly restrained occupant to emerge with injuries less severe than those within the heavier car. Purchase of a 1967 or later vehicle in order to have the better windshield and collapsible column is certainly advisable.

Active Medical Input

The conscientious physician driver should give his best medical input to the following:

1. Patients. No other group or individual can shoulder the obligation of the physician to identify medical factors which create driver limitation. It is equally obligatory to advise patients of their limitations and counsel them concerning driving habits. Though age, *per se*, is never a reason to inveigh against driving, it is valid reason for increasingly frequent re-examination. Acute and transient effects of illness or medication which may affect driving should be noted to the patient, but not used to initiate license reclassification.

2. The American Association for Automotive Medicine. Since 1955 this has been the most responsibly organized voice of physicians' interest in automotive safety. The organization needs participation by physicians of every specialty and has seen increasing contributions from engineers, psychologists, and related specialists in recent years.

3. Emergency Medical Care Systems. Improved salvage of the injured requires thoughtful direction and support by physicians. More than a dozen medical schools have now established Departments of Emergency Medicine seeking to gear a nucleus of physicians to special capabilities in this area. Other communities have turned toward the education of medical technicians or former military corpsmen to become skilled ambulance attendants and physician extenders. The

accomplishments of each program must be weighed in the coming years.

4. National Motor Vehicle Safety Advisory Council. This component of the National Highway Traffic Safety Administration has had minimum physician participation and needs such individuals via nomination through state and national medical societies. The major role of National Advisory Councils within our Department of Health appears quite abbreviated in the Department of Transportation, where scientific research and medical principles need to be emphasized. The twenty-two members of the council serve for three years and may be re-elected.

5. The National Safety Council and its local counterparts. These good and voluntary organizations require physician guidance and merit time from us just as well as from industrial leaders. In the absence of our medical input, we cannot criticize well meaning non-medical workers for their steps and plans.

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Cancer Immunology[1]

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The field of cancer immunology, including immunocompetence, therapy-induced immunosuppression, tumor antigens, tumor immunity and immunotherapy, is becoming very important in clinical medicine. It is based on the fact that malignant tumors contain antigens, which are in whole or in part, unique, and which induce specific immune responses in the tumor-bearing host.

The first principle of cancer immunology is the concept of immunological surveillance. This concept states that there is a mechanism within the body based on the action of circulating and tissue lymphocytes and macrophages through which tumors, containing tumor-associated antigens, are recognized as foreign when very small (presumably less than 10^5 cells) and, in most instances, are rejected. It seems likely that, only in rare cases, do immunogenic tumors break through this defense and produce a detectable malignancy in man.

There is clinical evidence to support the concept of surveillance. First, there are a large number of *in situ* tumors that never become clinically evident and are discovered only at autopsy. Second, spontaneous regressions of established cancer have been observed. Third, tumors tend to appear at the ages when the immunological mechanism is weak, either in early childhood, or in old age. Fourth, there is an increased incidence of malignancy in subjects with immunodeficiency diseases and finally, there is an increased incidence of malignancy in organ transplant recipients undergoing chronic immunosuppressive therapy with azathioprine and prednisone.

In addition to this clinical evidence, there is also experimental evidence for the presence of immunological surveillance and the role of the immune system in defense against cancer. Neonatal thymectomy makes animals more susceptible to the subsequent development of malignancy after exposure to a transplantable tumor, a chemical carcinogen, or an oncogenic virus. Treatment of animals with immunosuppressive antilymphocyte serum has exactly the same effects. Also, exposure to chemical carcinogens or exposure to oncogenic viruses are both very immunosuppressive during the latent period before the tumors appear. One can envision the carcinogen or the virus setting the circumstances of immunodeficiency under which an immunogenic tumor can develop.

The next major component of this concept is the relationship between immunological competence and the development or progression of malignancy. In patients with both primary tumors and metastatic or disseminated malignancy, there is a relationship between immunocompetence and prognosis. Patients who are immunocompetent have a good prognosis, while patients who are immunoincompetent have a poor prognosis. Tests for cell-mediated or cell-associated immunity, such as delayed hypersensitivity and *in vitro* lymphocyte blastogenesis are most accurate in predicting this correlation. One can hypothesize that therapeutic maneuvers designed to improve

[1] Alvarenga Prize Lecture XXXII, The College of Physicians of Philadelphia, February 6, 1974.

[2] Department of Developmental Therapeutics, University of Texas System Cancer Center, M. D. Anderson Hospital and Tumor Institute, Houston, Texas 77025.

the immunocompetence of immunodeficient cancer patients, such as active-non-specific immunotherapy, will improve their prognosis.

There is considerable evidence that there are tumor-associated antigens and specific immune responses associated with these antigens in most cancer patients. For example, patients with malignant melanoma have antibody against their own and other melanoma-patients' tumor cells which can be detected by immunofluorescence. Patients with sarcoma also have such antibody, which is detectable by immunofluorescence or complement fixation. This antibody is also present in relatives and close associates. The latter suggests a viral etiology for sarcoma. Cell-mediated immunity expressed by lymphocytes or macrophages and their interaction with appropriate tumor cells has been demonstrated by several techniques, including colony inhibition, lymphocyte or macrophage-induced cytotoxicity, and lymphocyte blastogenesis. *In vivo*, delayed hypersensitivity skin testing with either cells or purified tumor antigens shows positive results with some evidence for specificity among tumor types. Patients with vigorous tumor immunity show a better prognosis than patients with weak or absent tumor immunity.

Tumor-specific or associated antigens have been definitely demonstrated in the following diseases: carcinoma of the liver, carcinoma of the colon, acute and chronic leukemia, Hodgkin's disease, and several other solid tumors.

On the basis of the presence of tumor antigens and tumor immunity and on the basis of the relationship between immunocompetence and prognosis, it has been hypothesized that immunotherapy should be highly effective in the control of malignancy during or after conventional therapy. There are certain principles of immunotherapy which are important and which have been derived from animal experiments. First, the tumor burden must be small, or must be reduced prior to or concomitant with the immunotherapy. Immunological competence must be present, or it must be restored by the immunotherapy itself. The timing of the immunotherapy is critical, and it should be given between courses of chemotherapy or other immunosuppressive therapy. Use of the most tumor-specific reagents will guarantee the best results.

There are several approaches to immunotherapy. These include active-non-specific immunotherapy, which is designed to boost the general immunocompetence of the host. Reagents useful in active-non-specific immunotherapy include Bacillus Calmette Guérin (BCG), Corynebacterium parvum, methanol extraction residue of BCG (MER), Levamisole, and others. Second, there is active-specific immunotherapy. This is immunization with tumor cells or purified tumor antigens. Third, there is adoptive immunotherapy in which the immune response to the tumor is restored or boosted in the tumor-bearing patient by administration of allogenic immune cells, transfer factor, or immunogenic RNA. Fourth, there is passive immunotherapy which involves administration of specific immune serum. This has the danger of tumor enhancement, but there is hope that in leukemias and lymphomas, passive immunotherapy may have a role since enhancement has not been demonstrated in these diseases. Fifth, there is local immunotherapy in which the immunotherapy reagents, either active-non-specific, or adoptive, are injected directly into the tumor nodule. This has the same limitations as other local approaches to therapy for cancer since it is so often a systemic disease. Finally, one must also mention combinations of different approaches to immunotherapy, such as active-specific and active-non-specific or adoptive and

active-non-specific.

A variety of clinical experiments have shown great promise for the future of immunotherapy. First, Mathé and colleagues have shown that immunotherapy with BCG alone, immunization with tumor cells alone, or the combination of both approaches, prolongs chemotherapy-induced complete remission in acute leukemia. This was demonstrated in acute lymphocytic leukemia of childhood. Subsequently, Powles and co-workers showed that active-specific and active-non-specific immunotherapy combined prolonged complete remission duration in acute myelogenous leukemia of adults. Israel and co-workers have used a combination of chemotherapy and non-specific active immunotherapy with Corynebacterium parvum to double the survival of patients with advanced metastatic solid tumors of various types compared to chemotherapy alone. Southam treated patients with osteogenic sarcoma with an autologous, ultraviolet-irradiated homogenized tumor vaccine after surgical removal of the primary. Marked prolongation of the disease-free interval and survival was noted. Gutterman and colleagues treated patients with malignant melanoma with BCG after surgey for removal of state III or IV disease. Prolongation of the disease-free interval and survival was noted. Gutterman and colleagues also treated patients with advanced metastatic malignant melanoma with chemotherapy plus immunotherapy with BCG. An increase in the remission rate and a prolongation of the remission duration and survival were noted. This group has done a similar study in acute leukemia starting BCG alone after remission induction. Prolonged remission duration was noted compared to controls. These promising results indicate that research on active-specific and active-non-specific immunotherapy should be accelerated quickly.

In conclusion, we must not lose sight of the fact that the prime approaches to cancer treatment remain surgery, radiotherapy, and chemotherapy. Immunotherapy must be looked upon as an additional or adjuvant form of therapy to be applied concurrent with or after the above outlined forms or cytoreductive treatment. It is not felt that immunotherapy will have a place alone in the treatment of malignancy. The field of immunotherapy is in its infancy, and the studies that have been done to date must be considered to be in a very preliminary state. However, advances in tumor immunology and immunotherapy and in chemotherapy permit us to hypothesize the following course for a typical cancer patient in the future. At the time of diagnosis, the tumor will be removed by a non-radical biopsy procedure. The tumor will be subjected to intensive biochemical and immunological evaluation. The objectives will be to identify the specific unique or abnormal biochemical pathway for that specific tumor, and to isolate and purify the tumor antigens. From this laboratory research will come the specific drugs to destroy the residual tumor cells and will also come a very highly specific tumor antigen vaccine. Both of these will be administered to the patient after surgery and the chances of recurrence of tumor will be greatly diminished or abolished completely.

The Insurance Industry and Rehabilitation[1]

By GEORGE T. WELCH[2]

In recent years the insurance industry has been involved in rehabilitation of the disabled. This evening perhaps we could examine that involvement. My present company, the Insurance Company of North America, has a three-pronged involvement that indicates a real commitment. Let me tell you of the three areas of our present involvement in the rehabilitation of disabled people.

First, there is the MEND Program (Medical-Educational-Needs of the Disabled) which serves policyholders and claimants under policies issued by INA. This program is involved in the financial, medical, psychological and vocational aspects of claims in which INA has an involvement. It is administered by a Head Office Rehabilitation Unit and is staffed by Rehabilitation Nurses around the United States who coordinate the cases that come under the program.

Next, there is my company, International Rehabilitation Associates, Inc., which is a wholly-owned but independent operation which was chartered to provide rehabilitation services to other insurance companies, reinsurors and self-insured corporations. This company has some three hundred rehabilitation specialists in every state and every province of Canada.

The third phase of the INA commitment is the MEND Institute at the world-famous Human Resources Center located at Albertson, Long Island. This Center is comprised of Abilities, Inc., a demonstration work center where handicapped workers perform productive work, and the Human Resources School, which is a fully accredited institution covering pre-kindergarten through the twelfth grade of school. The students previously were receiving homebound tutoring since, because of their handicaps, they were not acceptable to the school system. The MEND Institute at this Center is a research and educational facility for the staff of both the MEND Program and the staff of IRA.

SLIDE I

I. Why Is Insurance Involved in Rehabilitation? Should Insurance Be So Involved?

   a. Loss ratios of insurors are high.
   b. Image of insurors is low.
   c. Insurors have a financial involvement in medical costs and lost wage costs.
   d. Insurors have money to spend to rehabilitate.
   e. Insurors receive notice of disability early.
   f. Insurance today is more than financial indemnity—it is a service industry.
   g. Consumer demands on insurors.
   h. Legislation demanding rehabilitation by insurors.
   i. Historically, insurance has been involved in restoration of property. Now there is a need to be involved in restoration of the body.

[1] A slide presentation read before the Section on Insurance Medicine, The College of Physicians of Philadelphia, May 15, 1974.

[2] President, International Rehabilitation Associates, Inc., Insurance Company of North America, 1600 Arch Street, Philadelphia, Pennsylvania 19101.

SLIDE II

II. What Is the Result of Insurance Involvement in Rehabilitation?

a. Savings by insurors holds down costs of insurance premiums.
b. Gives handicapped people equal opportunity in our society—many of these people never served before by existing programs.
c. Creates new career opportunities for para-medical people.
d. Fills a needed gap in communications between physician—insuror—employer—patient—family.
e. Improves image of insurance industry.

SLIDE III

III. What Coverages Are Involved in Insurance Rehabilitation?

a. Workmen's compensation.
b. Automobile liability (no fault also).
c. General liability, including products and malpractice.
d. Benefits coverages such as hospitalization—major medical—disability income—salary continuation.
e. Any new coverages designed for personal injury—sickness or disease.

SLIDE IV

IV. How Does Insurance Rehabilitation Work?

a. Contact in person by a medically oriented person with:

1. Disabled patient.
2. Disabled patient's family.
3. Disabled patient's employer.
4. Disabled patient's physician.
5. Disabled patient's insuror.
6. Disabled patient's attorney (if one is present).

b. Involvement of all as a team.
c. Plan of the team including medical—psychological—placement aspects.
d. Follow through with all parties until person is returned to a productive life.
e. This is a whole man concept.
f. Must benefit all or it will not be effective.

So an entirely new concept has developed in recent years that has and will serve many disabled persons. We need the cooperation and support of the medical profession for maximum success. Working together, the insurance industry and the medical facilities and practitioners can return many handicapped persons to a dignified, productive life.

Personal Recollections of Holders of the John Rhea Barton Professorship of Surgery at the University of Pennsylvania School of Medicine[1]

By ROBERT H. IVY, M. D.[2]

My interest in the John Rhea Barton Professors of Surgery in the School of Medicine of the University of Pennsylvania stems from close acquaintance and in some cases intimate friendship with all but the first and second incumbents of the Chair, D. Hayes Agnew, M.D., who died in 1892, and John Ashhurst, Jr., M.D., who died in 1900.

My principal objective in offering this paper is to put on record some hitherto little-known incidents in the lives of these noted men and bring to the present generation some idea of what manner of persons they were. A secondary objective is to arouse the interest of surgical faculty members of other Philadelphia schools of medicine to carry out historical studies of some of their equally and in some cases more talented surgical ancestors, e.g., the holders of the Samuel D. Gross Professorship of Surgery in the Jefferson Medical College and those who have formerly served in chairs of surgery at the other medical schools of Philadelphia.

Before taking up each member of this group of surgeons individually, let me outline briefly just who was John Rhea Barton, whose portrait hangs in the Pennsylvania Hospital (Figure 1). According to D. Hayes Agnew, in the biographical sketch (1) delivered at the Annual Commencement of the University of Pennsylvania Medical Department at the Philadelphia Academy of Music in 1878, John Rhea Barton was born in Lancaster, Pennsylvania, in 1796 (Figure 2), the younger son of the former Judge William Barton, who later removed from Lancaster with his family to Philadelphia where he was appointed secretary of the American Philosophical Society, after having received an Honorary Master of Arts degree from the University of Pennsylvania. A conflicting statement regarding the paternity of John Rhea Barton is published by Corner (2). On page 147 of Corner's *Two Centuries of Medicine* appears the statement that John Rhea Barton was the son of Benjamin Smith Barton (M.D., Göttingen, 1789). Of this I can find no documentary confirmation whatever. All other published records support the view that John Rhea Barton was in fact the younger son of Judge William Barton, of Lancaster, and nephew of Benjamin Smith Barton, M.D., the judge's older brother.

Concerning the paternity of John Rhea Barton, my attention has been called to an article by Whitfield J. Bell, Jr., in the *Journal of the History of Medicine and Allied Sciences* (3). Bell's paper advances seemingly irrefutable evidence that Benjamin Smith Barton never received an M.D. degree from the University of Göttingen. despite his efforts to obtain one there after leaving Edinburgh without one, and adds some question-

[1] Section on Medical History, The College of Physicians of Philadelphia, February 11, 1974.

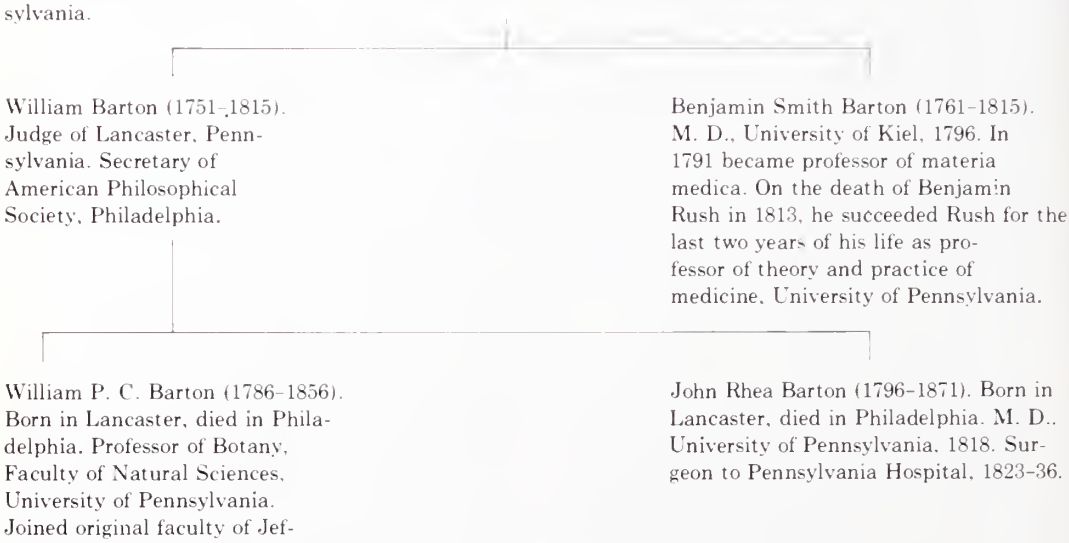
[2] Before his death on June 22, 1974, Dr. Ivy was professor emeritus of plastic surgery, The School of Medicine, University of Pennsylvania. Reprints: William T. Fitts, Jr., M.D., John Rhea Barton Professor of Surgery, The School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104.

Fig. 1. Portrait of John Rhea Barton, M.D., from the Pennsylvania Hospital, Philadelphia.

able support that this degree had been conferred on him by the University of Kiel as late at 1796, although there apparently is considerable doubt even of this. In the meantime, Bell's paper leaves the impression that Benjamin Smith Barton lived and thrived in Philadelphia as a professor on the faculty of medicine of the University of Pennsylvania for several years on a false rumor that he had received a degree of Doctor of Medicine from the University of Göttingen, and partly on this basis succeeded on the death of Benjamin Rush in 1813 to the chair of the theory and practice of medicine in the University of Pennsylvania for the last two years of his life.

John Rhea Barton himself had an older brother, William P. C. Barton, born in Lancaster, November 17, 1786, who became a botanist and Naval surgeon after graduation at the University of Pennsylvania Department of Medicine in

Fig. 2. The Bartons of Lancaster.



1808, ten years earlier than John Rhea Barton. These distinguished men were grandsons of the Reverend Thomas Barton, Rector of St. James's Protestant Episcopal Church in Lancaster, Pennsylvania, and his wife Esther, the sister of the noted Philadelphia astronomer, David Rittenhouse. The Reverend Thomas Barton himself followed the natural sciences of botany and mineralogy as an avocation (2, 4).

Figure 2 is a chart showing in part the genealogy of those members of the Barton family mentioned in this paper.

John Rhea Barton was educated at the University of Pennsylvania, from the Medical Department of which he received the M.D. degree in 1818. After a preliminary term of service as one of the surgeons to the Philadelphia Almshouse, then situated between Spruce and Pine and 10th and 11th Streets, a vacancy occurred at the Pennsylvania Hospital at 8th and Pine Streets in 1823 and he was appointed surgeon there. His name became attached to at least two items of surgical interest: 1., the Barton bandage, consisting of a strip of muslin 2 inches wide and 5 yards long applied in a figure-of-eight manner around the head to give support to the mandible in case of injury (5); 2., in November, 1838, Dr. Barton published his paper, entitled "Views and treatment of an important injury of the wrist, a modification of the Colles's fracture of the lower end of the radius above the wrist joint," described as the "Barton fracture" (6, 7). Earlier, in 1827, Barton established his reputation as one of the outstanding surgeons of his time by publishing a paper (8) "On the Treatment of Anchylosis by the Formation of Artificial Joints." The plan proposed in such cases involving the hip joint was to expose the femur near its upper extremity, divide the bone with a saw, and after allowing it to assume a straight position, practice frequent movements and thus designedly secure a false joint. This turned out successfully and the patient was again able to stand on his feet and walk. This case was followed by other successful results of fixed deformity of the knee, corrected by straightening, with permanent ability to walk (9). As an operator, Barton was cool, decided, elegant and full of resources, at the same time modest and dignified, without ostentation (Agnew). I would add that Barton's achievements were all the more remarkable because most of them were attained before the introduction of general anesthesia in the mid-1840s, before recognition of the importance of antisepsis or asepsis in surgery, and long years before introduction of the X-rays in surgical diagnosis. He retired as surgeon to the Pennsylvania Hospital in 1836 at the early age of 41 years, for unstated reasons, but died in Philadelphia of pneumonia on New Year's Day in 1871, just short of 75 years of age. Such was the man in whose memory the senior Professorship of Surgery in the University of Pennsylvania was established in 1877 through a gift of $50,000 for that purpose by his widow, Mrs. Susan R. Barton (1).

DAVID HAYES AGNEW

The first John Rhea Barton Professor of Surgery to be appointed was David Hayes Agnew, M.D., appointed in 1877 (Figure 3). Several biographies of varying length have been published on him, short ones by DeForest Willard, M.D. (10), and Edward Martin (11), and a longer one by J. Howe Adams, M.D. (12), one of his pupils, also published in 1892. Agnew was born November 20, 1818, near what is now known as Christiana, eastern Lancaster County, Pennsylvania, the son of Robert Agnew, M.D., a country general medical practitioner of Scottish-Irish descent. He received the M.D.

Fig. 3. John Rhea Barton Professors of Surgery, University of Pennsylvania.

	Born-Died	M.D.	Professorship
1. D. Hayes Agnew	1818–92	1838	1877–89
2. John Ashhurst, Jr.	1839–1900	1860	1889–1900
3. J. William White	1850–1916	1873	1900–10
4. Edward Martin	1859–1938	1883	1910–18
5. John B. Deaver	1855–1931	1878	1918–22
6. Charles H. Frazier	1870–1936	1892	1922–36
7. Eldridge L. Eliason	1879–1950	1905	1936–45
8. Isidor S. Ravdin	1894–1972	1918	1945–59
9. Jonathan E. Rhoads	1907–	1932	1959–72
10. William T. Fitts, Jr.	1915–	1940	1972–

degree from the University of Pennsylvania in 1838 and immediately entered the general practice of medicine with his father in Lancaster County. At 35 years of age he started the practice of surgery in Philadelphia in 1853, becoming surgeon to the Philadelphia Hospital in 1854. This institution, which included the Almshouse, had moved from the center of the city to Blockley Township, west of the Schuylkill, in 1832, whereas the School of Medicine of the University of Pennsylvania did not move to West Philadelphia until 1874. Dr. Agnew, soon after the start of his surgical practice in Philadelphia, began delivering lectures and cadaver demonstrations at what by this time was well known as the Philadelphia School of Anatomy, a privately owned institution. According to George W. Corner's *Two Hundred Years of Medicine* (2), "The level of scientific interest and competence of the leaders of the School of Anatomy was very high. The University of Pennsylvania Faculty of Medicine looked upon it as an auxiliary to its own teaching of surgical anatomy. One of the noted teachers at the School was D. Hayes Agnew who continued his lectures and cadaver demonstrations there after his appointment as surgeon to the Pennsylvania Hospital in 1865." The complete history of this noted private School of Anatomy and of the members of its staff was told by W. W. Keen in 1905 (13). In 1862 Agnew was made demonstrator of anatomy and assistant lecturer in surgery of the Medical Department of the University of Pennsylvania. During the Civil War, as Major Surgeon, United States Army, he served on the staff of at least two of the large military hospitals established in the Philadelphia area.

In 1870, Agnew was elected to the chair of clinical surgery and in 1871 he succeeded Henry Hollingshead Smith to the senior chair of surgery in the University of Pennsylvania, third in succession to Philip Syng Physick, which carried with it later the newly endowed John Rhea Barton Professorship of Surgery. On June 4, 1874, a central unit of the first University Hospital in the United States was dedicated on the south side of Spruce Street between 34th and 36th Streets, where Agnew was duly installed in the famous amphitheatre, still in existence in my own medical student days and after, but used for teaching internal medicine, dermatology and other subjects. Agnew held the John Rhea Barton Professorship from 1877 to 1889, when he retired from active surgery, and died in 1892. Figure 4 shows the celebrated oil painting of the D. Hayes Agnew Clinic by Thomas Eakins in 1889. Here is portrayed the noted surgeon lecturing to the officers of the undergraduate classes of the School of Medicine,

Fig. 4. Reproduction of oil painting by Thomas Eakins of the D. Hayes Agnew Clinic (1889).

namely 1889, 1890 and 1891, witnessing a breast operation being completed by Dr. J. William White, his eventual successor to the John Rhea Barton Professorship, after the death of John Ashhurst, Jr., in 1900.

JOHN ASHHURST, JR.

John Ashhurst, Jr., born in Philadelphia in 1839, received his M.D. at the University of Pennsylvania in 1860. He was recently brought to my attention through the article by Damon (14) as the second holder of the John Rhea Barton Professorship from 1889 until his death in 1900. I never met him personally, as I did not matriculate in the Department of Medicine until the fall of 1901, or over a year after John Ashhurst's death, although I later became fully aware of his accomplishments and fame largely through my close acquaintanceship with his son, Astley Paston Cooper Ashhurst, M.D., assistant surgeon to the Episcopal Hospital, Philadelphia, during my internship and residency there. Since the main purpose of this paper is to record personal reminiscences of holders of the John Rhea Barton Professorship, I shall now proceed to the first occupant of the Chair with whom I can definitely claim personal acquaintanceship.

J. WILLIAM WHITE

J. William White (1850-1916) was a member of an influential Philadelphia family, his father being the founder of the S. S. White Dental Manufacturing Company. He received his primary and secondary education in the public schools of Philadelphia, in the days when a high school certificate was sufficient

for matriculation in the two-year course in medicine at the University of Pennsylvania. From his earliest years he showed his determination to make medicine his primary life's work. He was graduated in medicine in 1873 and reached a position as demonstrator of surgery in 1882, and only seven years later, in 1889, he is shown in Thomas Eakins' oil painting as Agnew's first assistant and professor of clinical surgery.

Almost as soon as I arrived on the University campus in the fall of 1898, I learned who "Billy" White was—not only a professor of surgery and surgeon to the University Hospital, but one of the most influential figures in student and particularly student athletic affairs. Dr. White had always been an advocate of a strong athletic program as a morale builder in the student body, and out of his own pocket underwrote the tuition and living expenses of numerous prominent athletes representing the University on football, baseball, crew, track and other teams, or saw that they obtained employment in extracurricular activities to help in financing their college education. In those days, intercollegiate athletic eligibility rules were less rigid than they are today, and students in the professional schools—Medical, Dental, Law, Veterinary, etc.— were permitted to represent the University on athletic teams on the same basis as those in the College and other academic departments. In fact, during some years in the 1890s and early 1900s representatives on varsity teams from our professional schools outnumbered those of the comparatively small academic departments. With the advanced educational requirements for matriculation in our professional schools, however, this situation has gradually become a thing of the past, as most entrants by the late twenties had used up their eligibility to play for Pennsylvania by having previously represented other institutions before matriculating with us for their professional studies.

In the early days under discussion each academic and professional department of the University had one representative on a Faculty Committee on Athletics. This Committee had supervision of the eligibility of students in the respective departments of the members representing Pennsylvania on the varsity team in a particular sport. If an athlete lagged behind in his studies, he was warned and, if neccessary, not permitted to play until his academic standing improved. During my student years in the Dental and Medical Schools, 1898-1904, 1906-07, the representative of the Dental School on this Faculty Athletic Committee was my uncle, Dr. Matthew H. Cryer, professor of oral surgery, while Professor J. William White represented the School of Medicine. The chairman of this committee was also a medical faculty member, Dr. Horatio C Wood, although I believe that Dr. White was the real power behind the throne. J. William White was an athlete of no mean ability himself, engaging in some very strenuous sports, such as boxing, horseback riding, steeple chasing, fox hunting, shooting big game and mountain climbing. He had the reputation of a quick temper and would pick a quarrel leading to blows on a slight pretext. He was ready and willing to risk life and limb in defence of a cause in which he believed or to protect a friend. During my attendance as a student and later on the faculty of the Medical and Dental Schools, I became well acquainted with many prominent athletes aided by Dr. White during their student days at Pennsylvania who afterward became noted physicians, surgeons, dentists, lawyers and other successful professional and business men. Dr. White enjoyed a wide variety of interests within and outside his profession and in all walks of life. Among his medical and

surgical intimates were Sir Frederick Treves, Sir William Osler, Dr. W. W. Keen, with whom he was co-author of a standard *Textbook of Surgery*, Dr. S. Weir Mitchell, Drs. William J. and Charles H. Mayo, the distinguished writer Henry James, the noted artists Edwin Austin Abbey, John Singer Sargent, and Thomas Eakins; G. L. R. Agassiz, with whom in his early student years he made a scientific voyage to the Galapagos Islands, and President Theodore Roosevelt. Agnes Repplier (15) tells us that Dr. White, who had been appointed by President McKinley a member of the Board of Visitors to the U.S. Naval Academy at Annapolis, succeeded in persuading various government departments to permit the West Point and Annapolis football teams to resume their annual football rivalry on neutral territority at Franklin Field, Philadelphia, beginning in the fall of 1899 and ending, with three exceptions, in November, 1919 (16).

Fig. 5. Composite portrait and cartoon of Dr. J. William White, reproduced from the 1907 class *Scope*, University of Pennsylvania School of Medicine.

I became exposed to the teaching of Dr. J. William White, John Rhea Barton Professor of Surgery, from October, 1903 to May, 1904. He was respected by all students in the School of Medicine, who regarded him as a fine, systematic, logical and forceful teacher, and while not the most dramatic operator of his time, his principles of asepsis were up to date with the times, conservative and sound. Figure 5 is a composite of a portrait and a cartoon of Dr. White from my medical class of 1907 yearbook, the *Scope*.

Dr. White, during the summer of 1906, had undergone a serious lower bowel resection operation at the hands of the Mayo Brothers at Rochester, Minnesota, preoperatively considered to be for a malignant growth with a very poor prognosis for cure. Although this did not prove to be the case, his postoperative condition demanded all his recuperative powers, and he reluctantly consented to relinquish temporarily the strain of delivering his lectures on surgery to the incoming classes. He returned from a trip to Britain, Europe and Egypt in February, 1907, bringing with him an Honorary Degree of Doctor of Laws conferred on him in 1906 by the University of Aberdeen, Scotland, through the good offices of his close friend Sir Frederick Treves, Bart., the noted British surgeon. Three months after his return to Philadelphia Dr. White was offered and accepted the post of surgeon to the Pennsylvania Railroad Company, in those days a position of great importance in Philadelphia. In the fall of 1910, Dr. White resigned the John Rhea Barton Professorship of Surgery and gave up all surgical practice. Dr. Edward Martin succeeded him in this post and Dr. White was elected a member of the Board of Trustees of the University of Pennsyl-

vania and of the Fairmount Park Commission.

In the late summer of 1913, Dr. and Mrs. White sailed for Gibraltar, on the first stage of a trip around the world. On this trip, Italy, Switzerland, Greece, Egypt, India, China and Japan were visited, the sea voyage ending on the West Coast of the United States. The travellers finally reached home in Philadelphia the late spring of 1914. On this trip, a special objective of Dr. and Mrs. White was a visit to Canton, South China, where Dr. Josiah C. McCracken, one of the football and 1900 Olympic track stars, who had received support from Dr. White when a medical student, was chief surgeon at a hospital established by the University Y.M.C.A. The last place in the Far East to be visited was Japan, where Dr. White had been invited to address the "Same Window"* Society of University of Pennsylvania Japanese Alumni. Incidentally, his ship from Hong Kong made an overnight stop at Shanghai on the way to Yokohama, and Dr. and Mrs. White were the guests of my father and mother at their home in Shanghai.

Early in August that same year, 1914, Germany invaded Belgium, and while the United States did not immediately enter the war on the side of Britain and France, the vast majority of the American people were on their side and furnished them with support, financial, material and personal, in many areas. Several Red Cross Base Hospitals were organized in the United States and sent over to join the British and French Hospitals stationed in France and Britain. Dr. White personally organized, equipped and conducted to France a group of Philadelphia physicians and surgeons in the fall of 1914 who were established at the American Ambulance at Neuilly, just to the west of Paris, in a new building intended to be a high school. For Dr. White, however, this last act of devotion proved too taxing for his rapidly failing health, enforcing his early return home, leaving the hospital staff in charge of Dr. James P. Hutchinson, another prominent Philadelphia surgeon. With the entrance of the United States into the war in April, 1917, the American Ambulance was taken over and operated as part of the U.S. Army hospital system in France and remained in operation for the duration of the war. Dr. White's health continued to deteriorate rapidly on his return home to Philadelphia, where he died on April 24, 1916.

* A phonetic translation from Japanese of "Alumni Society," according to University archivist F. J. Dallett.

EDWARD MARTIN

The following are the basic biographical facts on Dr. Edward Martin, M.D., the fourth holder of the John Rhea Barton Professorship of Surgery. He was born in Philadelphia in 1859 and received his early education in the public schools and Central High School of Philadelphia. He received his A.B. at Swarthmore College in 1878, *magna cum laude*, where he was a member of Phi Beta Kappa. At the University of Pennsylvania, he received his A.M. in 1882, his M.D. in 1883, and a D.S. (Hon.) in 1920. He was a member of Phi Alpha Sigma, Alpha Omega Alpha, and of the winning varsity crews in 1882-83. He was professor of clinical surgery at the University of Pennsylvania in 1903-10. Figure 6 is a composite of a portrait and a cartoon of Dr. Martin in the yearbook of the medical class of 1907. He was second assistant to Dr. D. Hayes Agnew and later first assistant to Dr. J. William White. He was a member of the Board of Managers of Swarthmore College; he was clinical professor of surgery at Woman's Medical College of Pennsylvania from 1902 and for several years thereafter. He was the John Rhea Barton Professor of Surgery, University of Pennsylvania, in 1910-18. Figure 7 is a photograph of the

Fig. 6. Composite portrait and cartoon of Dr. Edward Martin, reproduced from 1907 class *Scope* of University of Pennsylvania School of Medicine.

Fig. 7. Reproduction of portrait of Dr. Edward Martin in his academic robes, which hangs in the School of Medicine, University of Pennsylvania.

portrait of Dr. Martin which hangs in the School of Medicine. On retirement, he accepted a professorship of surgical physiology. Dr. Martin was a Founder Fellow of the American College of Surgeons in 1913 and served on the Board of Regents, 1913-19. He was president of the Second Clinical Congress of Surgeons of North America, held in the auditorium of the new John Wanamaker Store in Philadelphia in 1911, with its magnificant organ. I well remember attending this gathering of outstanding surgeons from all parts of the United States, about one year following my starting the practice of medicine in Philadelphia in 1910. Two or three annual deliberations of this body in several large cities of the country finally resulted in the founding of the American College of Surgeons in 1913. Dr. Martin was a member of the American Philosophical Society, the American Surgical Association, the Society of Clinical Surgery and the American Association of Genito-Urinary Surgeons. In the field of public health, Dr. Martin had an impressive record. He was director of health and charities of the City of Philadelphia (corresponding to the present office of commissioner of health). From 1918 to 1923 he held the title of secretary of health of the Commonwealth of Pennsylvania. In 1911 he was appointed a member of the Philadelphia Board of Education. Dr. Martin also had a fine military record. He served as medical officer in the Third Regiment of the Pennsylvania National Guard in the War with Spain in 1898. In World War I he served as first lieutenant, major, lieutenant colonel and colonel in the Medical Reserve. He was director of the Army Medical Reserve Officers' Training

Camp at Fort Oglethorpe, Georgia, was on the powerful Medical Section of the Council of National Defense, recruiting medical officers for military service and possessing absolute powers to decide who should go into the armed services and who should stay at home. Dr. Martin also served as director of professional services and chief of surgery at the Walter Reed Army General Hospital in 1918. He was honorably discharged from active military duty on January 27, 1919. He was a "Fighting Quaker" in a real sense.

Dr. Martin, when he had the time to spare, was a devotee of various outdoor sports. He played tennis, golf, and enjoyed fox and game hunting and fishing. In the 1920s and the early 1930s, Dr. Edward Martin could be seen almost any Sunday morning in suitable weather playing a round of golf at the Springhaven Club near Media with his cronies Frank Aydelotte, the president of Swarthmore College and later chairman of the Rhodes Scholarship Committee at Princeton; John A. Miller, professor of astronomy and vice president of Swarthmore College; John G. Clark, M.D., professor of gynecology at the University of Pennsylvania; and Charles H. Schoff, M.D., president of the Golf Club, surgeon and owner of a private hospital in Media and former captain of University of Pennsylvania football teams in the 1890s, also owner of a series of Kerry Blue Terriers which roamed the golf course with him.

Drs. J. William White, Edward Martin, John G. Clark and other dignitaries of the faculty of the University of Pennsylvania Department of Medicine had their lighter moments and indulged in practical jokes, both at home and abroad. This was particularly characteristic of Edward Martin. In the early 1900s he and Dr. White were scheduled to attend an important surgical meeting in London. Dr. Martin registered at the Hotel Cecil in London a day or two ahead of Dr. White. At the hotel registration desk he told the clerk, "Tomorrow or the next day I have private information that a man will appear at this desk and attempt to register for accommodations as Dr. J. William White, famous surgeon of Philadelphia. We have had trouble with this man before, as he slightly resembles Dr. White in appearance, but in reality he is an international crook and jewel swindler and I advise you to have detectives waiting here for his attempt to register as Dr. White, as he is a menace to the safety of the valuables of the guests of this hotel." Consequently, on Dr. White's arrival at the registration desk the next day, he had some difficulty in establishing his identity before being allowed to register.

Another frequent travelling companion of Dr. Martin on visits to surgeons abroad was the aforementioned Dr. John G. Clark, professor of gynecology and an excellent abdominal surgeon. On one occasion these two gentlemen were at the Royal Victoria Infirmary, Newcastle-on-Tyne, England, in the operating room of the well-known British surgeon Sir James Rutherford Morison. He held the nick-name of "Bipp" Morison, being the originator of Bismuth, Iodoform and Liquid Paraffin Paste, used on gauze in draining and packing cavities and infected wounds. It was an unusually warm day and the American visitors sadly missed air conditioning in the operating room. While watching Morison's skillful performance of a gall bladder operation, Martin whispered to Clark, "John, he's good." Clark replied, but without much enthusiasm, "He's all right." Martin: "He's the best I've seen." Clark: "I don't believe he's that good." Martin: "He's better than you, John." Clark, indignantly: "What do you mean, better than me; I

differ entirely." Martin: "Yes he is, he is the *best sweater* I ever saw!"

In the later years of his life, Dr. Martin was plagued by a skin cancer involving the left lower part of his nose, treated by electrocoagulation and radiation, resulting in a healed defect of the left ala surrounded by a margin of scar tissue. This for some time he kept covered with a patch of pink adhesive plaster. He consulted me as to the feasibility of a permanent and more esthetic correction such as through a multi-stage surgical procedure to provide a skin lining as well as a covering for the defect. At his age, I recommended the use of an artificial prosthesis rather than a lengthy surgical repair. A gelatin prosthesis, suitably tinted, made and periodically renewed by Dr. Oscar Batson, the versatile professor of anatomy in the Graduate School of Medicine (still living in West Philadelphia), provided a very lifelike and color-matching disguise for this deformity which Dr. Martin wore for several years with great satisfaction. He died in 1938.

JOHN BLAIR DEAVER

John Blair Deaver, the fifth incumbent of the John Rhea Barton Professorship, was born in 1855 in a small town near Lancaster, Pennsylvania, where his father was a "country doctor" in the "horse and buggy days," of Scottish-Irish ancestry. His academic education was limited to attendance at the local public schools, which he deplored throughout his life as a handicap to his expressing himself adequately in publishing the results of his experiences in anatomy and surgery. John B. Deaver was the second of three brothers who all studied medicine at the University of Pennsylvania and practiced in Philadelphia: Richard W. (1874), John B. (1878), and Harry C. (1885). His older brother Richard became a well-known general medical practitioner, while Harry C. Deaver followed the footsteps of his more famous brother John, and became a well-known surgeon on the staff of the Episcopal Hospital and the Mary Drexel Home for Children of the German Hospital. In my early acquaintance with these two men, they related how they, with other pioneers in abdominal surgery in Philadelphia, performed many appendectomies, hysterectomies, and Caesarean sections on women who lay on kitchen tables in their homes. They usually worked as a team of three, one as the anesthetist, one as the surgeon's assistant and the third as the surgeon himself. One of the frequent collaborators of the Deavers in this practice was Joseph Price, M.D. (University of Pennsylvania, 1877), a brilliant abdominal surgeon and gynecologist, who later opened a special Hospital for Women on Logan Square. After receiving his M.D. in 1878, John B. Deaver held a teaching position in the Department of Anatomy of the University from 1888 to 1899, conducting also large and popular quiz classes in anatomy and surgery, with the title of assistant professor of applied anatomy. I can find very little in the published records about the events leading to Dr. Deaver's practically complete severance of relations with the University of Pennsylvania School of Medicine and the people in control there dominated by Dr. J. William White. As a surgeon and clinical teacher, Deaver had become second to no one of his time and had the support of many of our prominent alumni. The difficulty was a matter of personal rivalry between two strong-willed men and there was not room for both of them in the same institution. John B. Deaver's Saturday afternoon clinic at the German Hospital became the main center of attraction for graduate and undergraduate surgeons alike, from all parts of the United States. His two-year rotary internship followed by

the surgical residency at the German Hospital was coveted by graduates of medical schools everywhere, rivalled in Philadelphia only in part by the surgical training at the Episcopal, Pennsylvania, University of Pennsylvania, Jefferson, Methodist and Presbyterian Hospitals. Dr. Deaver was appointed as one of the surgeons to the German Hospital in 1886 and by 1896 had so outstripped his colleagues there that he was given the title of chief surgeon, which he retained until his death in 1931. At the time of World War I, it was considered politically wise by the management to change the name of the Hospital to that of Lankenau Hospital in the name of its principal benefactor.

Dr. Deaver was a rough and ready operator, ambidextrous, tireless, without great finesse, a good teacher, with many aphorisms used in a dramatic way for emphasizing his points, holding the large gathering in the amphitheatre spellbound. He probably performed more operations than any other surgeon in Philadelphia before, during or after his time, sometimes having on his list eighteen or even twenty-four operations for one afternoon, in all of which he did the major part himself. Here are a few of Dr. Deaver's oft-repeated aphorisms: "The surgical resident should make rounds with a stomach tube around his neck instead of a stethoscope." "Appendicitis, pain, purgation, perforation, peritonitis, procession." "What these cases need is the aseptic scalpel at the earliest possible moment." Although Dr. Deaver may have been handicapped by a limited command of English, he is credited with the authorship of several standard treatises and papers published in medical and surgical journals, with the aid of a few associates to do most of the drudgery work and looking up the references in the literature. He accepted frequent invitations to deliver addresses at meetings of local, county, state and national medical and surgical societies. With the aid of a few such academically well-educated scholars as Astley P. C. Ashhurst, Temple Fay, J. Leon Herman, Harry A. Knox, I. S. and Elizabeth Ravdin, his most important books were *Appendicitis* (1896), 4th edition, 1913; *Surgical Anatomy*, 3 Volumes (1899-1903), 2nd edition, 1926-27; *Surgery of the Prostate* (1905), 2nd edition, 1922; *The Breast* (1917); *Excursions into Surgical Subjects* (1923). Most of the indexing for his earlier books was done by Dr. A. D. Whiting, one of his colleagues at the German Hospital.

Dr. Deaver took care of himself physically, hardly ever keeping late social hours, getting a good night's sleep and rising early in the morning to see a constant flow of patients in his office in town until 11 A.M., when he drove to the German Hospital and after making rounds commenced his operations soon after noon. At one period, Dr. Deaver got most of his outdoor exercise by playing two furious eighteen holes of golf at the old Huntingdon Valley Club at Noble, usually alone, almost running between shots and wearing out two caddies in the morning on Fridays and Sundays. He was a member of nearly every important national, international and local medical and surgical society, but always avoided taking an active part as an officer of any of the professional societies of which he was a member. It is said that the only office he held in a Philadelphia society was that of second vice president of the Philadelphia Academy of Surgery. He also served as president of the American College of Surgeons in 1921 and 1922.

With the retirement of Dr. J. William White from surgery in 1910 and his death in 1916, there followed a period of relaxation of the old animosities between Dr. Deaver and those in control of

surgery at the University of Pennsylvania School of Medicine and its Hospital. Dr. Deaver returned to participate more actively in teaching as professor of practice of surgery in 1911. Dr. Edward Martin retired in 1918 to accept important military duties requiring active service in the U.S. Army Medical Corps, as mentioned previously. Thereupon, at long last, John B. Deaver was installed in 1918 as John Rhea Barton Professor of Surgery and Surgeon-in-Chief to the University Hospital, where he served brilliantly for four years in the autumn of his career until 1922 (Figure 8).

One afternoon, about a year before his death in 1931, Dr. Deaver walked into my office unexpectedly and said, "Ivy, I have trigeminal neuralgia limited to the third division of the fifth cranial nerve on the right side. The neurosurgeons want to resect the sensory root of the Gasserian ganglion on that side, but I am not going to let them open my skull. You have been trained as a dentist and I want you to give me an intraoral injection of 1 ml. of alcohol at the mandibular foramen, just as you would inject novocain for extraction of a lower molar tooth." Having tried this previously in similar cases, I found that it did not work, and said "Dr. Deaver, that won't do any good. You may have numbness for a day or two, but the feeling will then return and you will probably have a lot of soreness and stiffness of the jaw muscles from infiltration by the alcohol." Nevertheless, he insisted, practically ordering me to do it, and who was I to refuse this grand old man who had shown me so many favors in getting my practice started as a surgical specialist in Philadelphia? So I gave him a standard injection of novocain, leaving the needle in place, and when numbness of the lip on that side proved that the needle-point was in the right place, followed the novocain with 1 ml. of 95% alcohol and removed the needle. He thanked me and as he was leaving the office, I said "You'll be back in a few days, raising Hell because you can't open your mouth on account of infiltration of the muscle with the alcohol, and the neuralgia pain returns." He said, "I'll take a chance on that." I did not see or hear from him until several months later when I saw him leaving the Racquet Club after lunch. I said, "Dr. Deaver, how's your pain?" He answered, "Haven't had a twinge since!" Dr. Deaver died on September 25, 1931, in Philadelphia, at the age of nearly 76 years of an obscure anemia of a few weeks' duration, which numerous blood transfusions failed to relieve and for which no cause was found at autopsy.

Fig. 8. Reproduction of portrait of Dr. John B. Deaver in his academic robes, which hangs in the School of Medicine, University of Pennsylvania.

CHARLES HARRISON FRAZIER

The successor to John B. Deaver as the John Rhea Barton Professor of Surgery was Charles Harrison Frazier, who held the title from 1922 to 1936.

Charles Harrison Frazier was born in Germantown, Philadelphia, on April 19, 1870, the son of William West and Harriet (Harrison) Frazier. He was a member of a wealthy and influential Philadelphia family, his uncle, Charles Custis Harrison, being provost of the University of Pennsylvania from 1895 to 1911, the provost in those days being the chief presiding officer. The nephew was not materially handicapped by the necessity of earning a livelihood through his profession. After graduation with the degree of A.B. from the College Department in 1889, and M.D. from the School of Medicine in 1892, he served as intern and resident in surgery at the University Hospital. In 1895 he pursued graduate studies in surgery at the University of Berlin and came home deeply impressed with the German system of medical and surgical education. On his return to Philadelphia, Dr. Frazier worked as a member of the surgical faculty of the University of Pennsylvania to reach the professorship of clinical surgery in 1900, which he retained until 1922 when he succeeded Dr. John B. Deaver to the John Rhea Barton Professorship (Figure 9). Dr. Frazier served for years as one of four surgical chiefs at the Episcopal Hospital, Philadelphia. At first the bulk of his practice was in general surgery, but about 1900 he began to show evidence of his preference for neurological surgery and surgery of the thyroid. His great achievement in the neurosurgical field was the development with William G. Spiller of the operation of avulsion of the sensory root of the Gasserian ganglion in the treatment of trigeminal neuralgia. During his neurosurgical career he trained several men who became outstanding in this field, including Max Peet, of the University of Michigan, Alfred W. Adson, of the Mayo Clinic, Rochester, Minnesota, William James Gardner, neurosurgeon at the Crile Clinic, Cleveland, Ohio, Temple Fay, Robert A. Groff and Francis C. Grant in Philadelphia. The last succeeded him as chief of neurological surgery at the University of Pennsylvania.

Fig. 9. Composite portrait and cartoon of Dr. Charles H. Frazier, reproduced from 1907 class *Scope* of University of Pennsylvania School of Medicine.

Dr. Frazier's energies outside his surgery were directed toward improvement of the standards of medical education in the United States and specifically through the University of Pennsylvania, during a period when the didactic lecture method was beginning to yield in a large degree to laboratory instruction in the various basic medical sciences. In 1902, Dr. Frazier succeeded Dr. John Marshall, professor of chemistry, as dean of the School of Medicine, and held the position until 1909.

Dr. Frazier was interested in me as a young medical student, and his attitude toward medical training is well exempli-

fied by a letter to my Uncle, Professor Matthew H. Cryer, in the spring of 1907:

Dear Dr. Cryer:

I am very glad indeed to hear that you approve of your nephew Mr. Ivy accepting the appointment at the Episcopal Hospital. He is comparatively young, and I am sure he will feel more than repaid for the additional year or fraction of a year which he may spend there. *I am sorry that more of our graduates do not realize the necessity for this intermediate preparation between the time they graduate and the time they engage in practice. There is an uncontrollable impatience on the part of most of them, which makes them seek early appointments and short terms of service in order that they may soon engage in actual practice.*

Sincerely yours
Charles H. Frazier, M.D., Dean

Figure 9 is a composite portrait and cartoon of Dr. Frazier copied from the 1907 medical class yearbook. Figure 10, also in the 1907 medical class yearbook, is a photograph of the class during its senior year in attendance at one of Dr. Frazier's neurosurgical clinics. Dr. Frazier is exhibiting a post-operative head patient, aided by Dr. George P. Muller, his first assistant, later professor of clinical surgery, and Dr. Floyd E. Keene, the resident, who later became professor of obstetrics and gynecology. The writer is shown seated on the front row, fourth to the right of the center.

I accepted the appointment at the Episcopal Hospital and never regretted the decision. Completion of this internship and residence proved to be a cachet of acceptance in Philadelphia surgical circles.

Within the first week of my arrival at the Episcopal Hospital to start my internship and residency on October 1,

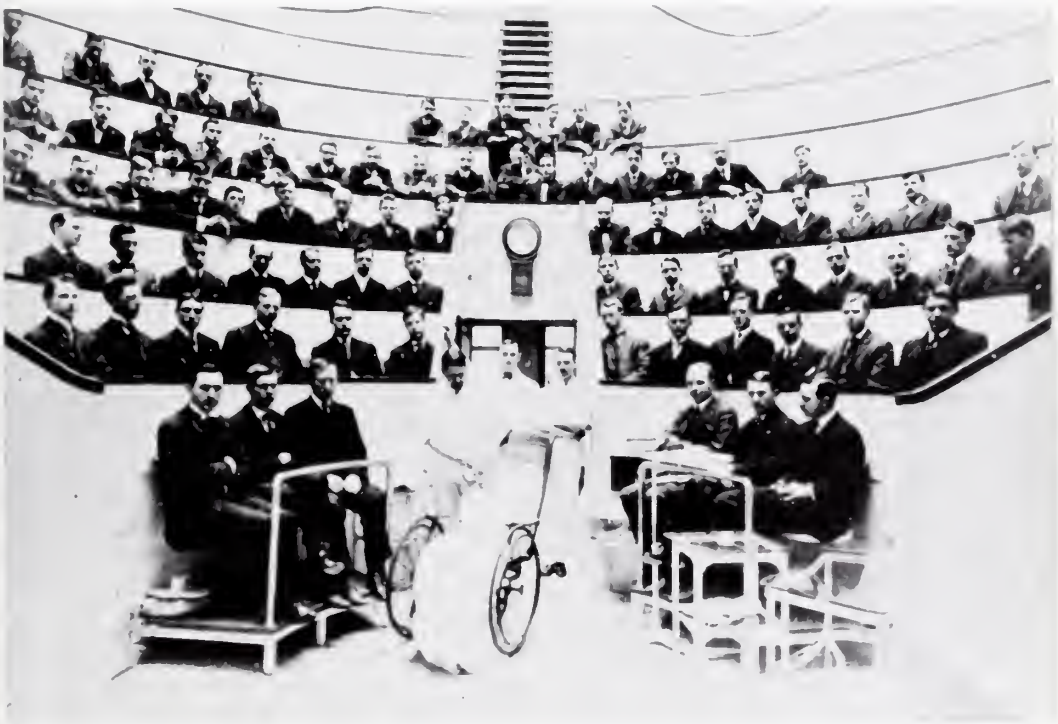


Fig. 10. Neurosurgery clinical conference by Dr. Charles H. Frazier and assistants, with medical class of 1907, University of Pennsylvania.

1907, Dr. Frazier put my experience in the administration of general anesthetics to the test by selecting me to give open-drop ether anesthesia to an elderly patient undergoing a fifth cranial sensory root avulsion of the Gasserian ganglion for trigeminal neuralgia. Dr. Frazier at that time did not have a special table for these operations at the Episcopal Hospital, but operated on the anesthetized patient sitting upright in an old rocking-chair provided with a clamped-on head rest and wooden blocks under the rockers. The whole affair went off smoothly and Dr. Frazier appeared to be well pleased with the results.

In 1917, with the prospect of the early entrance of the United States into the War on the side of Britain and France and their allies, the Red Cross appointed Dr. Frazier as director to select the medical, surgical, nursing and enlisted personnel of a unit designated as Red Cross Base Hospital No. 34, representing the Episcopal Hospital, Philadelphia, for service with the U.S. Army overseas, and he offered me a place on the surgical staff with the grade of captain, Medical Reserve Corps, with the prospect of assignment to the care of maxillofacial injuries as the need arose. As matters turned out, events modified the service plans of both Dr. Frazier and myself. He was commissioned a lieutenant colonel in the Army Medical Reserve, and assigned as chief consultant in neurosurgery in the U.S. Army General Hospital No. 11, Cape May, New Jersey, principally in the treatment of returning war casualties involving the head, spine and nervous system. On the other hand, I, instead of being assigned to a Red Cross Hospital Unit for overseas service, was commissioned a captain in the Medical Reserve and assigned on my first call to active duty on August 23, 1917, to the Office of the Surgeon General, Washington, D.C., as assistant to Major Vilray P. Blair of St. Louis in the plans for care of war injuries in the face and jaws.

My next close contact with Dr. Frazier took place after we had both returned to civilian life and resumed practice and teaching in Philadelphia. He as a colonel and I as a lieutenant colonel, Army Medical Reserve, received orders to temporary active duty, beginning July 4, 1920, for the purpose of attending, as representatives of the United States Army Medical Corps, the Inter-allied Surgical Conference in Paris, Dr. Frazier to discuss the late results of treatment of war injuries of the peripheral nerves, and I to discuss the treatment of war fractures of the lower jaw by bone grafts (which I read in French). The meeting was held in the amphitheatre of the École de Médecine of the University of Paris. We travelled to France on an army transport on which Dr. Frazier and I shared a stateroom. This brief association confirmed my impression that Dr. Frazier was a fine gentleman and travelling companion. One evening, I accompanied him to the Folies Bergère, where he became so disgusted with the obscenities and sacrilege on the stage that he walked out during the second act, taking me with him. Next morning also, we walked out of another theatre, this time a hospital operating theatre where then the professor of laryngology in the University of Paris was performing an operation for cystic goitre, literally digging out the large mass with his fingers. Dr. Frazier, who carried out thyroid operations with the utmost refinement of technique, meticulously clamped all the severed blood vessels with dozens of hemostats, ligating the larger ones and obtaining a dry field before closure by applying the electric cautery to the clamps on the smaller bleeders.

Dr. Frazier, on the retirement of Dr. John B. Deaver in 1922, succeeded to

the John Rhea Barton Professorship of Surgery, which he held until his death in 1936. During this period, with able collaborators to carry the load of teaching and patient care in general surgery and urology, he restricted himself more and more to neurosurgery and surgery of the thyroid.

ELDRIDGE LYON ELIASON

Dr. Frazier died in 1936, while still in harness as the John Rhea Barton Professor of Surgery, to be followed by Eldridge Lyon Eliason (Figure 12) as the seventh holder of the John Rhea Barton Professorship, who was the first incumbent whom I could look upon as a contemporary of my own, since he spent the first three years as a fellow undergraduate medical student in the Class of 1905. He was born in Chestertown, Maryland, January 6, 1897, the son of William and Mary L. Eliason. For many of the essential facts of his career, I am indebted to the excellent memoir prepared by Eugene P. Pendergrass, M.D. (17). From this and personal communications and contacts with him, the recollections set down are as accurate as I can make them. "Eli," appropriately nicknamed as a Yale graduate as well as an abbreviation of his surname, armed with an A.B. *cum laude* degree and Phi Beta Kappa certificate from Yale, where he had also achieved distinction as an infielder on the baseball team and captain in his senior year, and one of the leading intercollegiate gymnasts, descended from a Pennsylvania Railroad train in the summer of 1901, and, unaware that there was any other medical college in Philadelphia than Jefferson where he intended to matriculate to try to duplicate the career of a deceased uncle who had previously studied medicine there after attending Yale and being graduated M.D. first in his class, asked a bystander outside the station which trolley car would take him to the "Medical College." He followed the man's instructions to take Car 34 out Woodland Avenue to 36th Street and the Medical School which was the green stone building on the East side of 36th Street going south. He walked up the steps of the main entrance and entered a room marked "Dean's Office." He told the man at the desk his name and that he had just graduated at Yale and hoped his credentials would permit him to matriculate as a first year medical student in the class starting that fall and graduating in the spring of 1905. Dr. John Marshall, dean of the School of Medicine, at the time, looked over his credentials and, finding them very satisfactory, turned the registration book around and asked Eli to sign his name. He was also given an application form, and for the first time Eli realized that he was at the University of Pennsylvania. "Oh, I am at the wrong school," he said. Dr. Marshall, who had seen him participate in intercollegiate gymnastics or baseball, looked up and said, "No, Mr. Eliason, you are in the right school." And Mr. Eliason registered as a Penn medical student. He was graduated among the first ten in the 1905 medical class and was appointed to a two-year rotating internship at the H.U.P., on completion of which he was chosen for a surgical residency at that hospital. He made a favorable impression on J. William White, then still chief surgeon, when as an intern Eli was wheeling a stretcher bearing a patient out of the amphitheatre which ran over Dr. White's foot. When Dr. White rather sharply protested about this, Eli, instead of cringing before the great man, stood his ground and said, "I am sorry, doctor, but your foot should not have been there." Dr. White was so pleased with Eli's independence and logic that he immediately selected him as one of the surgical residents on his

staff. He served as assistant surgeon to the H.U.P. from 1908 to 1922 under Drs. White, Martin and Deaver, and as surgeon from 1923 to 1945, holding the John Rhea Barton Professorship of Surgery as the successor to Dr. Frazier from 1936 to 1945 (Figure 11). Other Philadelphia area hospitals at which he served as surgeon at one time or another were the Howard, Philadelphia General, Delaware County, Mount Sinai and Presbyterian, the last from 1933 to 1950, to which he practically limited his operating during the last years of his life. Eli's surgical career in Philadelphia was interrupted by his absence on military active duty overseas in World War I as chief of surgical service of Red Cross Base Hospital No. 20, recruited with commissioned administrative, medical, dental and nursing officers and enlisted personnel from the University of Pennsylvania for service overseas under command of Lieutenant Colonel John Berton Carnett, also a professor of surgery in the School of Medicine. As United States Army Base Hospital No. 20, his unit sailed on the transport *Leviathan*, arrived at Brest, France, May 2, 1918, and reached its final destination, Chatel Guyon (not a village in northeastern France, as stated on page 257 of Corner's *Two Centuries of Medicine*, but near the geographical center of France, about 225 miles due south of Paris), a health resort in the Department of Puy-de-Dome in the Auvergne Mountains, where it took over several summer hotels and other buildings which provided a bed capacity of 2,500. Lieutenant Colonel Eliason, during his term as chief of the surgical service at Base Hospital No. 20, gained some experience nearer the battle front spending a brief time as a member of one of the surgical teams sent forward from the base hospitals in the Zone of the Interior to treat casualties within the first few hours after injury, thus assuring in most cases their arrival in much better condition at the base hospitals in the Zone of the Interior. Following the Armistice on November 11, 1918, Base Hospital No. 20 ceased to function in January, 1919. The personnel were demobilized at Camp Dix, New Jersey, on May 15, 1919, and Dr. Eliason a short time thereafter resumed his surgical practice and teaching at the University of Pennsylvania. Eli never married, but assumed domestic responsibilities and maintained a home in Philadelphia for a widowed brother with children. From his earliest days in surgery he showed a special regard for the nurses in training at the Hospital. To quote Pendergrass (17), "He was interested in nursing schools and nursing organizations. He is the only doctor ever made an honorary member of the University of Pennsylvania Nurses' Alumnae Association."

Fig. 11. Reproduction of portrait of Dr. Eldridge L. Eliason, which hangs in the School of Medicine, University of Pennsylvania.

The nursing profession never had a better friend than Eli in solving some of their problems from time to time, both individual and general. A University of Pennsylvania Hospital graduate nurse on my service in one institution for several years told me that Eliason, while a surgical resident at the University Hospital, disguised himself in a nurse's uniform and gained admission without detection to a masked Halloween party in the nurses' home, right under the eagle eye of the directress of nurses.

Surgical Nursing, written by Dr. Eliason as the senior author, had, as of 1945, passed through seven editions, and continues to be one of the best books on the subject. It was published in Philadelphia by the J. B. Lippincott Company, and I am the proud possessor of an autographed copy of the seventh edition, in the preface of which he and his coauthors state, "We wish to thank also Dr. R. H. Ivy, Professor of Plastic Surgery for his revision of the Chapter dealing with Plastic Surgery."

In 1941, at sixty years of age, I was stricken with a gall bladder ailment, characterized by painless jaundice with no radiological or other evidence of gall stones, and Eli and Fred Bothe, one of the other surgeons at the Presbyterian Hospital, agreed that an exploratory operation should be done to rule out cancer, always to be kept in mind as a possibility to be considered in those days in an elderly person with jaundice without gall stones. At the exploratory operation, nothing was found but a constricted common duct, no gall stones or malignancy; the wound healed after a week or two of drainage, and the jaundice cleared up. In the light of our present knowledge, this illness could well have been an attack of infectious hepatitis.

On Eliason's recommendation in 1944, passed by the Faculty and confirmed by the University of Pennsylvania Board of Trustees, my title in the School of Medicine and the Graduate School of Medicine was changed to professor of plastic surgery, a much appreciated promotion to a broader title.

Eli was a good golf player and for several years was a member of the Philadelphia Country Club, beginning with the days when it was still at the original location near the City Line at Bala and later at the new eighteen holes at Gladwyne when they were opened. Eli played with a regular group (Figure 12) of eight or ten for foursomes once or twice a week, consisting of Eliason, Dr. George M. Laws, also in the 1905 class of medicine, Dr. Walter Cariss, Dr. George P. Muller, Dr. Brooke M. Anspach, Dr. Frederick A. Bothe, Mr. Samuel Freeman, of the ancient firm of auctioneers, and myself after I joined the Club in 1938. Our particular foursomes hardly ever played for more than ten cents a point, and the *winners* always paid for the drinks after the game. I noticed that Eli, no matter whether he won or lost, never drank anything stronger than a Coca Cola, while the rest of us always had something stronger and more expensive, like gin and tonic, whiskey, or Harvey's Bristol Cream. So one day I asked him why he never took anything but a soft drink. Very seriously he explained, "Bob, one night after I had won the Sergeant Intercollegiate Strength Test at Yale, after I had drunk one alcoholic drink too many, I threw my roommate across the room and almost killed him; I learned my lesson then and have not touched a drop of hard liquor since." A wonderful exhibition of self-control!

Another anecdote related to me by Eli: One day he had been requested to see in consultation, at her residence not far from Philadelphia, a lady he had never met previously. On arrival at the house, he was shown upstairs to the

Fig. 12. Dr. Eldridge L. Eliason with a group of his golfing friends at the Philadelphia Country Club. (Photograph by Dr. Ivy).

room where the patient was lying in bed. When he entered the room, he paused in astonishment and said, "This is my Mother's bedroom at Chestertown, Maryland." The furniture, wallpaper, carpeting, pictures, curtains and decorations were identical. Eli's mother had died a year or two before and the house and its contents sold at auction. The lady patient had taken such a liking to this bedroom that she purchased the contents *in toto* and had as many items as possible transferred to her own bedroom in the Philadelphia area.

Eli, an unusual person, after a very short illness, died in the Presbyterian Hospital, Philadelphia, of an unusual disease, periarteritis nodosa, at seventy-one years of age, on March 6, 1950. He retained the John Rhea Barton Professorship until 1945, about a year over the age limit.

ISIDOR S. RAVDIN

Isidor S. Ravdin returned from distinguished service overseas in World War II and immediately succeeded Dr. Eliason in 1945 as the John Rhea Barton Professor of Surgery. The details of Dr. Rav-

din's life and career have been fully recorded elsewhere, so I will stress here a few personal incidents involving my own contacts with him from time to time. I had known him well since my return to Philadelphia in the fall of 1919 following military service in World War I, having been appointed to a professorship of maxillofacial surgery in the newly established Graduate School of Medicine of the University of Pennsylvania in 1920. Ravdin was appointed an instructor in surgery at the Graduate School of Medicine the same year, and he and Dr. Henry L. Bockus, the internationally known gastroenterologist, in their later years sometimes engaged in humorous arguments at staff meetings as to which of the two preceded the other in seniority of appointment on the Graduate School of Medicine staff. On one of these occasions I concluded the argument by stating, "In those days you two were mere boys, *only instructors*, while I was a *full professor!*"

Shortly after Dr. Frazier's death in 1936, I went one day to see Dr. Ravdin, who had been Dr. Frazier's assistant and shared a private office with him in the University Hospital. Ravdin was busy cleaning out contents of drawers and filing cases that had passed their usefulness. I said, "Rav, what is to become of all these framed pictures on the walls? What about that group picture over there?" "Oh, that," he replied, "is just one of Dr. Frazier's clinical conferences with some class or other." I said, "I know. It is my own Class of 1907, and I want that picture." Thereupon, he lifted it down from the wall and handed it to me, and ever since it has been one of my prized possessions.

Dr. Ravdin was the main influence in promoting the idea of an Honorary Doctor of Science degree for me from the University of Pennsylvania, finally accomplished on June 16, 1954 at the 198th Commencement Exercises, where Dr. Ravdin personally presented me for the degree, with a very flattering citation.

I present two portraits of Dr. Ravdin during his period of greatest activity. The first (Figure 13), from the frontispiece of the University of Pennsylvania *Medical Bulletin*, December, 1954 (Editor, Barbara K. Fitts), shows Drs. I. S. and Elizabeth Ravdin, "leis" around their necks, on their way home in 1954 from Honolulu, where "Rav" had presided at the Pan-Pacific Surgical Congress that fall, and at which I presented a cleft palate paper. The second portrait (Figure 14), now at the Ravdin Institute, on a more somber note, illustrates "Rav" as he was beginning perhaps to show some of the sobering physical effects of his multiple strenuous activities.

Dr. I. S. Ravdin's own accomplishments and honors have been recorded elsewhere many times and extended far beyond the scope of any ordinary man. He gained full recognition as the outstanding surgeon of his day, all at a per-

Fig. 13. Drs. Isidor and Elizabeth Ravdin, from picture taken on their way home from a visit to Honolulu where Dr. I. S. Ravdin had presided at the 1954 meeting of the Pan-Pacific Surgical Congress.

Fig. 14. Later portrait of Dr. I. S. Ravdin in operating garb at the Hospital of the University of Pennsylvania.

sonal sacrifice of his health and a life of complete withdrawal from all activities until the final call on August 27, 1972.

JONATHAN E. RHOADS

Jonathan E. Rhoads, Dr. Ravdin's successor to the Professorship in 1959, who yielded it in 1972 for reasons which I am totally unqualified to surmise, but one of which *must* have been an opportunity to serve the University of Pennsylvania in another sphere of surgery which requires his special talents and skill. In his own particular way, Jonathan Rhoads joins Dr. Ravdin as one of the two most brilliant surgeons of our time. His motto throughout life has unofficially been that of the Princes of Wales—"Ich Dien" —not always observed by the Princes, but followed to the letter by Jonathan Rhoads as regards the profession of medicine, locally and nationally, in any capacity that manifests itself, without regard to personal preferences, and the long list of his titles in many varied fields fully bears this out.

I first remember Jonathan E. Rhoads as a member of the surgical staff of the Graduate School of Medicine, as the associate of Professor Walter Estell Lee, in operation of the second General Surgical Service there around 1939, and since 1950 he has been a full professor of surgery at the Graduate School of Medicine. Ever since Dr. Rhoads has been the director of the Harrison Department of Surgical Research he has kindly listed my publications in the Annual Reports of publications of the Department, not at my suggestion but at his, thus substantially elevating my prestige in surgical literature, to do which he has been under no obligation whatsoever. Years ago, when Jonathan Rhoads was chairman of the scientific program of the Philadelphia Academy of Surgery, he kindly accepted a paper offered by me for the joint meeting in Philadelphia with the New York Surgical Society in 1956. He suggested the title for this as "Contributions of Plastic Surgery to Other Fields of Surgical Endeavor," and it was published a short time later in an issue of the *American Journal of Surgery* dedicated to Sir Harold Gillies. I am pleased to include here two portraits of Dr. Rhoads, one a snapshot (Figure 15) and one a photograph of the portrait painted in 1959-60 by Franklin Watkins (Figure 16). One version of the Watkins portrait hangs in the University Library and one at Haverford College, where Dr. Rhoads has been a trustee.

WILLIAM T. FITTS, JR.

This brings us to the last and recently installed incumbent of the John Rhea

Fig. 15. Photograph of Dr. Jonathan E. Rhoads on file at the Ravdin Institute.

Barton Professorship, William T. Fitts, Jr. (Figure 17), to whom on the announcement I summoned up enough nerve to address the following letter:

Dear Bill:

Please accept my sincere congratulations on your appointment as the John Rhea Barton Professor of Surgery in the University of Pennsylvania.

In my humble opinion, no one anywhere is better qualified for the job. The University Administration is also to be congratulated on having sense enough to select one of its own home grown boys instead of importing a stranger from far afield. It will give assurance to our Alumni that all is not lost . . .

You are a worthy successor to all of the brilliant men whom you follow.

With best wishes for a continuing long and successful career, I am

Sincerely yours,
Robert H. Ivy

Fig. 16. Portrait of Dr. Jonathan E. Rhoads by Franklin Watkins.

Fig. 17. Characteristic pose of Dr. William T. Fitts, Jr., in photograph on file at the Ravdin Institute.

Bill Fitts sent me a characteristic modest reply in line with every tradition with his Southern ancestry and upbringing.

In my archives I have found some almost forgotten correspondence with Bill Fitts, when as a resident in surgery he was doing some animal experimentation in the Harrison Laboratory of Surgical Research. He asked me for suggestions on a plan to demonstrate the most reliable way by animal experimentation to restore large gaps in the continuity of long bones, and whether stored bone banks of homologous bone would be as effective as autogenous bone transplants. He reported later that as far as he went with the experiments in dogs, there was a tendency in favor of the autogenous bone transplants, which confirmed my own opinion, even up to the present day.

Dr. Fitts is the last incumbent of the John Rhea Barton Professorship with whom I have been well acquainted.

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Two Centuries of American Dentistry[1]

By MILTON B. ASBELL, D.D.S., M.Sc. (Dent.)[2]

In order to put the story of dentistry in the United States in proper perspective, it is necessary to begin with eighteenth-century Europe, particularly France and England. For during the eighteenth century, France assumed the leadership in world dentistry and retained it until the 1840s when the United States became prominent. This is due in large measure to the work of Pierre Fauchard (1678-1761). No one individual has exerted a stronger influence on the development of the profession; in fact, he is referred to as the "Founder of Modern Dentistry." He was responsible for transforming a craft into a profession and gave to this new branch of medicine a scientific and sound basis for the future.

His labors resulted in the publication of the classic work entitled *Le Chirurgien Dentiste, ou Traité des Dents* or *The Surgeon Dentist*, completed in 1723 and published in 1728 and followed by a second edition in 1746 and a third in 1786. Determination to break down the practice of selfishness, secrecy and unwillingness of others to share their knowledge led him to publish the results of over twenty years of practice and study. He discussed dental education, dental anatomy, pathology, materia medica and therapeutics, orthodontics, surgery, replantation of teeth, reflex nervous diseases related to mouth diseases, operative and prosthetic dentistry.

As a result of Fauchard's efforts, the dentists of France began extensive publication of volumes on dentistry, including such subjects as dental prophylaxis and therapeutics, dental pharmacopeia and oral surgical procedures. The development of a suitable artificial tooth in porcelain was achieved by a French chemist, du Chateau, and entirely revolutionized the construction of artificial dentures that formerly had been constructed of bone, ivory and the like.

In England, at this time, the Barber Surgeons' Company controlled the surgical profession, and when the surgeons broke away (1745) to form their own association, the barbers were left to cupping, bleeding and tooth-drawing. However, in dentistry there evolved the "Operator-for-the-Teeth," the earliest designation of the dentist. As early as 1685, the first text in the English language had been published by Charles Allen, entitled *Operator for the Teeth*. But, it was the tremendous efforts of Thomas Berdmore, dentist to King George III, which set the pattern for the advancement of the status of dentistry during this time. His work, entitled *A Treatise on the Disorders and Deformities of the Teeth and Gums*, published in 1768, passed through several editions and was translated into several languages. It advanced the cause of dentistry for children and recommended techniques of dental surgery, operative dentistry and orthodontics. This was also the period of the greatest advocate of dentistry for children, the Italian, Bartolomeo Ruspini, whose text on the subject passed through thirteen editions.

However, the greatest impact given to the dental art was given by the researches of John Hunter. His description of the formation and growth of the human teeth and jaws excelled anything

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previously written and was published in his *A Treatise on the Natural History of the Human Teeth* (1771). He initiated a new epoch in dentistry by basing dentistry upon scientific observation at a time when empiricism was rampant. It was at his suggestion that William Rae of London delivered the first course of lectures on dentistry ever given. His scientific work was carried on by his pupils, such as Robert Blake, who wrote the best physiological treatise on the teeth up to that time, and Joseph Fox, who was the first to advocate that treatment of the teeth was to be based upon the general principles of scientific knowledge and the practical experience of surgery.

The first step in the evolution of dentistry in America may be considered the importation from the Old World, particularly England and France, of scientifically and practically trained surgeon dentists of the preceptorial system existing in those countries. Of course, dental ills were also cared for by itinerants traveling from town to town selling toothache remedies and extracting teeth, by resourceful housewives who learned by trial and error and whose household dentistry made use of homemade "plasters" and mouth rinses, and by artisans and craftsmen, ivory-turners, clock-makers, and silversmiths, who, with a certain amount of dexterity, were able to fashion crude dental appliances. Prominent among this group were the artist Charles Willson Peale, Isaac Greenwood, Sr. (the first of a family of dentists), and Paul Revere. Other practitioners of dentistry were physicians who, among other professional activities, extracted teeth, performed surgical operations and treated diseases of the mouth. Among these were Benjamin Rush, Zabdiel Boyleston, John Rhea Barton, Valentine Mott and others.

It may be well to point out that the state of dental health in Colonial America was very poor at best. The reasons for this are described by reports such as "the inhabitants have proverbially poor teeth, which must probably be occasioned by their eating so much molasses . . . their poor teeth is attributed to hot drinks rather than to the climate . . . the loss of their teeth is due to the too frequent use of tea . . . the sudden decay of the teeth and their loss very generally at an early age is ascribed to the immoderate use of confectionary."

But, it was the class of surgeon-dentists who laid the scientific basis for the practice of dentistry as we know it today. Among these may be mentioned John Baker, M.D., who devoted his attention to the dental art and became one of this country's first preceptors; Robert Woofendale, from England, who wrote the earliest book on dentistry in this country; James Gardette, whose forty-five years of practice elevated the dental art in Philadelphia; Richard Skinner, who was the first dentist to be appointed to the staff of a hospital. Thus, during the early decades of the nineteenth century there was a small but growing number of capable dental surgeons working to equip themselves competently for the emerging profession and elevating it in the public esteem. They were becoming specialists in dentistry, a division of medicine, which the medical profession began to respect, as noted by the fact that many dental surgeons were granted the M.D. degree.

This period, too, saw the beginning of dental literature in the United States. Between 1800 and 1840 there were sixty works on dentistry published in the leading cities along the eastern seaboard, most of which were sincere efforts to promote the practice and principles of the dental art to future practitioners and to the laity.

The year 1840 holds a special significance to dentistry because it was during this year that the three basic foundations of dentistry were established, namely,

the first dental school in the world—the Baltimore College of Dental Surgery, the first national society of dentists in the world—The American Society of Dental Surgeons, and the first journal devoted exclusively to dentistry—the *American Journal of Dental Science.*

The practice of dentistry in the first half of the nineteenth century had made remarkable progress, considering the state of the scientific and mechanical advancement of the period. Dental practice consisted of operative and mechanical phases; operative procedures comprised all operations performed at the chair, while the mechanical work was incident to the construction of artificial dentures performed in the laboratory. Operative procedures consisted of restoration of carious teeth, periodontal lesions diagnosed and treated, and surgical procedures. The development of new materials and improvements in techniques brought the mechanical phase of dentistry to great prominence.

Dentistry claims many priorities in its contributions to human welfare but none greater than that of the discovery of general anesthesia. It is true that Crawford W. Long, M.D., of Georgia is known to have administered ether to a patient for the removal of a tumor in 1842. However, he made no public disclosure of it, nor did he publish the results of his work until after ether had become generally introduced through the efforts of others, and thus he should not be regarded as its discoverer. In 1844, dentist Horace Wells of Connecticut, attending a "laughing gas" demonstration by a chemist, C. Q. Colton, noted the anesthetizing effect of this gas upon an injured participant of the demonstration. The following day, C. Q. Colton administered this gas upon Horace Wells, at which time, the dentist John M. Riggs extracted one of Wells' teeth. This is the first recognized surgical procedure upon a human being while under a general anesthetic. Wells continued the use of nitrous oxide in his practice and in 1845 attempted to convince the medical profession in Boston of its importance at a demonstration at Harvard Medical College. For some reason, the anesthetic did not fully anesthetize the patient and the demonstration was considered a failure. He continued its use but in 1848 committed suicide, driven by frustration and despondency.

Dentist William T. G. Morton, a pupil of Wells, demonstrated the use of ether as a general anesthetic at the Massachusetts General Hospital on October 15, 1846. A great controversy ensued between himself, Horace Wells and Charles T. Jackson, a chemist who collaborated with Morton. However, the result of Morton's demonstration was publicized by surgeons John C. Warren and Henry J. Bigelow with the publication of their work in the *Boston Medical and Surgical Journal*, thus giving credence to it, and the effects produced were worldwide.

The latter half of the nineteenth century was characterized by the formation of the professional organization that has come down in unbroken sequence to this day—The American Dental Association; by the establishment of more than fifty proprietary dental colleges which, together with the preceptorial system, were responsible for a dentist population of close to 30,000 by the year 1900; by the invention of new and the perfection of established materials and methods; by the dissemination of information to the profession by journals and other publications sponsored by individual dentists, by dental organizations, by manufacturers or dealers in dental supplies and by dental schools; by the increasing number of textbooks and other works on practically every phase of dentistry numbering over five hundred volumes; by the introduction of local anesthesia into dental practice, initiated by Balti-

more surgeon William H. Halstead, who in 1885 blocked the inferior dental nerve for the first time; by the immediate use of the X-ray in dental practice soon after its discovery by Roentgen in 1895; by the formation of commerical companies promoting the manufacture and production of materials, supplies and equipment for the dental profession and by the regulation of dental practice by state dental laws.

With the advent of the twentieth century, dentistry had advanced on many fronts. There was a continuing preeminence in technological progress, a steady search for enduring relations with the biologic sciences, a growth of professional literature, an awareness that dental health is a part of the totality of health, and a recognition of social responsibility in the practice of the profession. In terms of dental practice, there was a development of equipment, such as the X-ray machine and electric vitality testing equipment. The complete dental office came to include not only dental equipment but furnishings for administrative purposes. Microscopic examinations and transillumination contributed to the refinements of clinical diagnosis. An increasing tendency to emphasize the biologic aspects of oral diagnosis suggested that dentistry envisioned a greater responsibility for oral health.

Oral infection has a definite effect upon general health, while systemic diseases and nutritional, endocrinological and developmental disturbances have a marked effect on the teeth and oral cavity. The introduction of a plan of complete mouth restoration and treatment based on biologic considerations was one of the great steps in operative and restorative dentistry.

Another significant innovation in dental practice was the introduction of the dental assistant, the dental hygienist and the dental laboratory technician, thus creating a dental team approach to dentistry.

As a result of the increasing demands for specialized treatment, various specialties were established and are now recognized:

1. Orthodontics (1901) is concerned with the detection, study, prevention and correction of iregularities in tooth position and jaw relationship and deformities of the face produced by these conditions;

2. Oral surgery (1918) deals with the diagnosis, surgical and adjunctive treatment of the diseases, injuries and defects of the jaws and associated structures;

3. Periodontics (1918) is concerned with the diagnosis and treatment of diseases which effect the soft tissues of the mouth;

4. Prosthodontics (1918) is involved with the design and fabrication of dental appliances and substitutes for natural teeth, such as crowns, bridgework and dentures;

5. Pedodontics (1927) is the dental equivalent of pediatrics in medicine and treats oral health conditions in the child patient;

6. Dental public health (1937) is that area of dentistry which seeks to prevent and control dental diseases on a community level and promotes dental health through public education and community efforts;

7. Oral pathology (1946);

8. Endodontics (1965) is devoted to treating infections of the pulp of teeth in an effort to preserve them.

As medicine had its Flexner Report, so dentistry had its Geis Report. Dr. William J. Gies, professor of chemistry at Columbia University, conducted a comprehensive study of dental education in America in 1926 sponsored by the Carnegie Foundation. His scholarly and impartial approach and high zeal and devotion has made this document the greatest

contribution to dental education. It spelled the final doom of the proprietary school, set dental education within the framework of a university discipline, awakened the public to the significance of dental care as a health measure, and emphasized the fundamental obligation of society to give dental education and research support. Since that time, other surveys have been updating this report, the most recent of which is that conducted by the Commission on the Survey of Dentistry in the United States which re-evaluated dentistry in terms of its development to meet the ever-changing and prospective responsibilities of the profession in American society.

Research in dentistry is a product of the twentieth century. There had been earlier attempts at research before, but this century has seen the development of a highly sophisticated effort in such a degree that its results are fundamental to the modern concept of dentistry. Prominent among these efforts was the standardization of dental materials and supplies and the epidemiologic work on dental fluorosis (the influence of water-borne fluorine upon dental caries) which led to the fluoridation of public water supplies now being carried to millions.

The military establishment of our country gave recognition to dentistry as an integral part of its health program by first establishing a Dental Corps in the Army in 1911 and the Navy in 1912 with commissions for dentists as officers.

Prevention has become a key in development of modern dentistry. The application of the principles of human biology and the basic sciences in the management and prevention of diseases of the oral region has led to a specialized branch of dentistry known as oral medicine. New concepts of nutrition, studies in microbiology, research into the histopathology of dental organs and a re-evaluation of anatomical structures are a few of the important areas that have led to new concepts of dental practice.

The remarkable development of biomechanical agencies for relief and reparation in dental practice is being matched by progress in prevention of dental and oral disease.

There is a broadening base on the dental sciences with an interdependence of biology, medicine and dentistry. This includes progress in the fundamental understanding of the causes of dental caries or the factors which provide immunity and in the understanding of periodontal disease as a complex of diseases that affect the supporting structure of the mouth. The role of micro-organisms in pathogenesis and the cellular and humoral mechanisms of host resistance must be more clearly defined. The important area of abnormal oro-facial growth and development and birth defects, increased attention toward the important neuro-muscular activities centered around the oral region, the increased participation of such relevant fields as metallurgy, biophysics, physical and colloidal chemistry and crystallography, and the problems of speech pathology and its therapy—all these are pathways to progress in modern dentistry.

The dentist of the future must be capable of developing all the technical and clinical skills and biological application required and, in addition, must possess a background in ethics, philosophy and social sciences and humanities which will make him capable of understanding and meeting the great demands of the dentist of the future.

How Sir Charles Bell Became Involved with the "Invisible Girl"

By THOMAS N. HAVILAND, M.S. (Hon.)*

In 1827, Thomas Hood wrote a humorous poem entitled "Mary's Ghost, a Pathetic Ballad." The poem was based on a legend of the "Invisible Girl" whose ghost was reputed to haunt the anatomical rooms of Sir Charles Bell (1774-1842). W. W. Keen quotes the poem from William Gibson's *Rambles in Europe in 1839* but does not credit Hood with the authorship; he also titles the poem "The Invisible Girl." James M. Ball, in his *Sack-em-up Men*, likewise quotes the poem, crediting it to Hood and giving footnotes identifying the various surgeons mentioned in the ballad as culled from Sprigge in his *Life of Thomas Wakley*. Sprigge identifies all the surgeons and places mentioned, with the exception of a "Dr. Vyse" mentioned in the sixth stanza.

In the fall of 1804, Charles Bell, then thirty years of age, left his partnership with his elder brother, John, in Edinburgh, and journeyed to London. He was possessed of a modest confidence in his abilities, but in reality his character was more timid and quiet than daring.

Experiencing some difficulty in making a connection in London, despite letters of commendation, Charles Bell improved his time by completing the plates for his *Essays on the Anatomy of Expression in Painting*, which he had brought with him in manuscript. After repeated applications, he at last found a publisher for his work, which appeared in print in 1806.

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In the fall of 1805, he decided to announce a private course of anatomy, hoping his book would draw students to his lectures, prospective surgeons as well as painters. In Edinburgh, he had had as many as 86 pupils; in London, it took him an entire year to obtain more than three, and meticulous frugality became imperative.

His book was slowly acknowledged by the public and by the magnates of surgery and medicine, such as Cline, Cooper, and Abernethy, but it also excited the jealousy of petty opponents. Encouraged by friends to apply for the vacant Chair of Anatomy in the Royal Academy of Artists, and with his book on *Expression* in his hand, he proffered his talents, only to be passed by. Vacancies occurred three times, and three times he was refused.

Resigning himself at last to giving private lessons in anatomy, he purchased (Pichot, Ball says "leased") an old, strange, dilapidated mansion at No. 1, Leicester Street, Leicester Square, for his school and residence. The house had formerly belonged to Arthur Onslow, Speaker of the House of Commons for thirty-three years, and from him Bell acquired it for a very nominal sum.

On the first night he spent in the house, he put out the candle and was leaping into bed when a portion of the floor gave way under him; he thought himself most fortunate the next morning to find himself still present on the same floor. On examining the flooring that morning, he noted some tubing under the loose boards, which appeared to serve no particular purpose.

Hiring a surveyor or architect to examine the house, Charles Bell was appalled by his account. Leaning out the window and observing the walls out of their perpendicular, the rough, burly surveyor exclaimed, "Sir, you had better have nine bastard children than this house over your head!" He, likewise, when shown the tubing beneath the floor boards, was unable to surmise its function. In the journal of his daily impressions, Charles Bell wrote, "A man brought up, as I had been, in Scotland, has certain notions of respectability, which are very strong and peculiar. I do not know that at any time I was more depressed than when I found the sort of house I had got possession of."

One day Bell was boasting of his housing bargain to Garthshore, an elderly and eccentric physician who remarked in a peculiar, mysterious way, "Never mind, my friend, you'll pay dearly enough for it at last; you might as well have a wife and seven children, or a millstone about your neck; it's a divil of a house, an awful place, and you'll have a divil of a time in it I'm thinking."

Charles Bell, however, thought little of these remarks of Garthshore's at the time but accommodated himself in this ruin as well as he could and instituted his course in anatomy.

Among the neighboring credulous cockney tradesmen and residents in the streets around Bell's residence, the house actually had the reputation of being haunted, one woman even going so far as to state that she had heard that it was the habitation of the "Invisible Girl."

Whatever notoriety the old mansion had among the neighbors was no doubt enhanced by the suspicious-looking parcels and bundles delivered periodically, but mostly on dark nights, by rough-looking characters; for this was the heyday of the "Resurrectionists" or "Body-snatchers." It was imperative that anyone giving anatomical demonstrations must have a supply of "subjects" or cadavers. Since the legal supply of subjects, the bodies of executed criminals, fell far short of the demand, recourse was had to the only other source, the Resurrectionists, the "Sack-em-up Men." That Bell patronized these ruffians is almost certain in order that he might "set an ample table" for his students.

A few years later (1811), when he purchased the controlling interest in the Great Windmill Street School and was its principal professor, it is a matter of record that he had dealings with the ghouls because three entries in the diary of a Resurrectionist (December 11 and December 23, 1811, and January 13, 1812) show that bodies were delivered to him by members of Ben Crouch's gang on these occasions.

Garthshore's predictions came true, if we can believe William Gibson in his *Rambles in Europe*. Some years previously, Gibson had studied anatomy under Charles Bell and was one of his house pupils in Leicester Square. He claims he received the information from his fellow house pupils; however, the following account raises suspicions of either gullibility or embellishment of facts:

"Months rolled away, however, and nothing occurred to disturb his (Bell's) tranquility. The lectures went merrily on, and pupils were dropping in, and he was then a bachelor, and had nothing to care for; but, at last, his servants began to leave, one by one, and, as fresh ones were engaged, they, in turn, in a week or two, cleared out; his house pupils, too, who at first preferred single rooms, were not satisfied until they could be crowded together into one or more beds, as far as possible from the Anatomical Theatre. All this, however, was a mystery to Sir Charles, for as often as he asked what was the matter, what had got into the heads of the cooks, and chambermaids, waiters, and into the minds of his pupils, he was only answered, 'Nothing, sir,

nothing in the world.' He got reconciled, at last, to the thing, and thought no more of it, until one night, after a hard day's work, being restless, excited, and not very well, and tossing about, half-asleep, half-awake, as he supposed, he felt his foot suddenly grasped by an *ice-cold hand*, but for how long, it was impossible to say, such was the horror inspired even by the thought, much less the reality of such an event. All he remembered, afterwards, was pacing the floor industriously, for some time, to shake off the effect of his dream, for such source, no doubt, had the impression he experienced been derived. Upon talking with his pupils next day on the subject, he heard, for the first time, the cause of their clustering together in one chamber and was distinctly told that everybody in London believed Onslow House haunted by a beautiful young woman, who died, whilst engaged to be married, and whose body was dissected by different London surgeons.† This accounted for Garthshore's remarks, and, perhaps, for the pathetic ballad soon after published, under the name of 'Mary's Ghost.' "

The reputed spectre was popularly known as the "Invisible Girl," and the title of the comic poem that follows, by Thomas Hood, based on this apparition, is sometimes given as "The Invisible Girl," or "The Pathetic Ballad of the Invisible Girl," sometimes as "Mary's Ghost." The true title is "Mary's Ghost, a Pathetic Ballad," and was written in 1827. The later stanzas of the poem mention various well-known anatomical teachers of London at that time, but one, a Dr. Vyse, mentioned in stanza six, as stated above, Sprigge was unable to trace.

† According to the above-mentioned neighborhood gossip, this beautiful "Invisible Girl" had been dissected by the surgeon's scalpel before life was extinct in her body.

MARY'S GHOST: A PATHETIC BALLAD
By Thomas Hood

'Twas in the middle of the night,
To sleep young William tried,
When Mary's ghost came stealing in,
And stood at his bedside

O William, Dear! O William, Dear!
My rest eternal ceases;
Alas! my everlasting peace
Is broken into pieces.

I thought the last of all my cares
Would end with my last minute;
But tho', I went to my long home,
I didn't stay long in it.

The body-snatchers, they have come,
And made a snatch at me;
It's very hard them kind of men
Won't let a body be!

You thought that I was buried deep,
Quite decent-like and chary,
But from her grave in Mary-bone[1]
They've come and boned your Mary.

The arm that used to take your arm
Is took to Dr. Vyse;[2]
And both my legs are gone to walk
The Hospital at Guy's.[3]

I vow'd that you should have my hand,
But fate gives us denial;
You'll find it there, at Dr. Bell's,[4]
In spirits and a phial.

As for my feet, the little feet
You used to call so pretty,
There's one, I know, in Bedford Row,[5]
The t'other's in the City.[6]

[1] St. Marylebone Burial Ground in Marylebone parish. This area is situated in the west end of London between Hyde Park and Regents Park.

[2] Dr. Vyse. See text of paper.

[3] Guy's Hospital founded in 1721 by Thomas Guy (1644-1724). A medical school was established and the hospital opened to students in 1723.

[4] Sir Charles Bell (1774-1842). See text of paper. Created Baronet in 1829.

[5] John Abernethy (1764-1831) for many years resided at No. 14, Bedford Row. He was founder of the Medical School at St. Bartholomew's Hospital.

I can't tell where my head is gone,
But Dr. Carpue[7] can;
As for my trunk, it's all pack'd up
To go by Pickford's van.[8]

I wish you'd go to Mr. P.[9]
And save me such a ride;
I don't half like the outside place,
They've took for my inside.

The cock it crows—I must be gone!
My William, we must part!
But I'll be yours in death, altho'
Sir Astley[10] has my heart.

Don't go to weep upon my grave,
And think that there I be;
They haven't left an atom there
Of my anatomie.

[6] The Aldersgate City School of Anatomy conducted by Tyrell and Lawrence.

[7] Dr. Joseph Carpue (1764-1848), founder of the Dean Street Anatomical School. Such was his zeal for anatomical exactitude as to how a dead body would hang on a cross that, at the request of some artists friends, he obtained a corpse fresh from the gallows, nailed it to a cross, and when rigor mortis had set in made a cast of the body.

[8] Pickford's Van, evidently quite an old cartage company, still exists.

[9] Mr. Richard Partridge, demonstrator of anatomy, King's College Hospital. It was the suspicions and quick thinking of Mr. Partridge that uncovered the crimes of Bishop and Williams when they tried to sell him the body of a young Italian boy whom they had murdered. This incident was one of the contributing factors that finally helped to pass the Anatomy Act in 1832.

[10] Sir Astley Cooper (1768-1841). He was demonstrator of anatomy at St. Thomas's Hospital Medical School and surgeon at Guy's Hospital. He dissected every day of his life and paid large fees and liberal allowances to the body-snatchers for obtaining the bodies of some of his patients for dissection and autopsy, on whom he had operated years before. He once stated before a House of Commons Committee that "there was no person, whatever his worldly place, whom he could not dissect if he would." Thomas Hood is in error here in referring to Cooper as *Sir* Astley. He was not created a Baronet until about fifteen years after this period (1820).

The house at No. 1, Leicester Square had, in the past, as Tom Tylor tells us in his *Leicester Square*, been frequently used for public exhibitions of various types, such as the "Chinese jugglers from the Court of Pekin," Reimer's Museum of anatomical wax-works, Montanari's Royal exhibition of wax-work models, and others. It is here we learn that the greatly exaggerated legends of the ghostly "Invisible Girl" had a basis in fact as shown by a contemporary show-bill of the time. Taylor's account of the phenomenon also explains the mystery of the tubing beneath the floor boards. The show-bill reads as follows:

"The Invisible Lady,
or
Delphic Oracle,
is now open,
No. 1, Leicester Square,

Where in a small Temple, impossible for human beings to enter, and unconnected with any surrounding object, will proceed a voice, supposed to be the manner in which THE ANCIENTS COMMUNICATED WITH THEIR GODS. And which will describe the dress, nation, or any particular, and so completely deceiving the senses as to appear the EFFECT OF MAGIC.
And there will also be produced, as if by Enchantment,

MUSIC

From the softest to the highest note, close to the Ear, in this philosophical and highly pleasing Exhibition. Admittance one shilling.
Open from Ten in the Morning till Nine in the Evening, Sundays excepted."

Tylor states, "The voice was produced by an ingenious arrangement of tubes carried from a girl in another room to the light pillars and canopy of the so-called 'temple.' "

In reality, Charles Bell was undoubtedly aware of the legends of the "Invisible Girl" and probably of the significance of the tubing beneath the floor boards, since, in his Commonplace Book

of daily impressions, he writes, "I discovered a tube under the loose boards; it was the house where the invisible girl exhibited."

This above notation gives little credence to the charmingly embellished account related by William Gibson in his *Rambles in Europe.*

Puerperal Fever and Nineteenth-Century Contagionism: The Obstetrician's Dilemma[1]

By J. WISTER MEIGS, M.D.[2]

I have never seen a patient die of puerperal fever, or as one would say today, post-partum infection. Perhaps some of you have, but even so, probably not many, thank God! Let me tell you how things were a century or so ago. The *Diary* of Sidney George Fisher describes the circumstances of the death of his sister-in-law, Sarah Ann Fisher, the wife of his brother Henry (1). Her fourth child, a daughter, was born on Monday, the third of May 1858, without complications. Fisher wrote "I went to town [on] Tuesday . . . and called at [my brother] Henry's office to inquire about Sarah Ann and the baby . . . I told him I regretted that I had made an appointment to go to Mt. Harmon on that day, as I should feel anxious about them. He replied that there was no cause for uneasiness as Sarah Ann was remarkably well, and after three days all danger would be over."

Fisher left town and returned three days later on Friday to learn that Sarah Ann had died on Thursday night at 10 o'clock of puerperal fever. He reported: "I can hardly recall my feelings . . . The news was so sudden, the nature of it so overwhelming, that I strove in vain to bring it closely to my consciousness, to feel that it was or could be true." He drove immediately to his brother Henry's house. "On my way, I met Dr. Meigs [Charles D.] in his carriage coming from there. He had been with Sarah Ann from the first attack till all was over, working faithfully and exhausting the resources of his mind and skill, but all in vain. He described the whole scene to me. On Tuesday, [that is, one day post-partum] Sarah Ann continued well, remarkably well till 8½ o'clock in the evening. Her condition was so favorable that Henry had gone [out]. At 8½ o'clock, a servant was sent to tell him of a change. He came home with all speed and sent off for Meigs and for Dr. Wister. They came before midnight. It was evident that she was dangerously ill. George Smith went out on Wednesday. She rallied from time to time and they did not lose hope until Thursday. Meigs then asked for a consultation. Pepper was sent for and at once pronounced the case hopeless. They were all with her, using every effort that could be used without ceasing from Wednesday morning till Thursday night at 10 o'clock when she calmly died, they all say without having ever been conscious of her danger and without any suffering, tho the day before she had a great deal. [At the house] George Smith . . . gave me the same account that I had received from Meigs . . ."

The fact that Charles Delucena Meigs was my great-great-grandfather does not alter the possibility that in this or some other cases of puerperal fever in his practice, he may have conveyed infection to

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[2] Associate Clinical Professor of Occupational Medicine, Department of Epidemiology and Public Health, Yale University School of Medicine, 60 College Street, New Haven, Connecticut 06510.

his patient. Yet if he did so, there is evidence that it was probably not because he failed to take hygienic precautions within the limits of the knowledge of his day. In all editions of his most popular text (2), *Woman and her Diseases and Remedies*, in the chapter on puerperal fever, after expressing "disbelief in the contagiousness of the various forms of the disease," he included the following statement: "And I therefore most explicitly declare, and I beg you to bear in mind that I now make this declaration, that I think it will always be your duty, whether you may believe in the contagiousness or not, of a malady, to avoid, as far as it may be in your power, all occasion to transmit, if it can be transmitted, an epidemical or endemical disorder." This was in the context of ". . . taking all proper precautions against propagating by my person a malady so fatal in its nature."

Meigs' recommendations for cleanliness and hygiene in general were supported by his personal behavior, if one can credit the report of Dr. J. W. C. Cuddy of Baltimore, printed some years after Meigs' death. Cuddy noted (3) that Meigs' ". . . beardless face was always cleanly shaven . . . ," that he was "scrupulously neat in his attire, . . . at all times ready to enter either the sick-chamber or the drawing room . . . ," and that "his linen was of snowy whiteness . . ."

Despite these evidences of Meigs' personal care as well as concern, one is left with, at least, uncertainty and, more likely, suspicion, about the relationship between his actions as an obstetrician and the occurrence of puerperal fever in his patients. It is natural to assume that he might have been at fault. Contemporaries, both physicians and laymen, raised the ugly issue of criminal responsibility. Oliver Wendell Holmes made explicit statements implying that Meigs conveyed the contagion of puerperal fever to his patients and that he was responsible, because he rejected the doctrine of contagion, for the deaths of countless women attended in childbirth by physicians who had been influenced by Meigs' anticontagionism (4). This view is the conventional wisdom of today. If Meigs' name is known at all, it is chiefly because he was an anticontagionist, the prototype of an obstinate stupidity that is assumed to have been probably criminal in its consequences.

This conventional view is of interest because it may well have inhibited further exploration of the fact that some of the most serious epidemics of puerperal fever occurred *after* bacteria were discovered and bacteriological theory had been fully accepted and all available antibacterial methods had been applied. This leads to several questions. First, why did Charles D. Meigs and some of his contemporaries express disbelief or skepticism about contagion? Second, how did obstetricians and other doctors deal with persistent puerperal fever? Third, why did some obstetricians and most writers of obstetrical history imply that anticontagionists were responsible for maternal deaths in epidemics occurring even after there was total acceptance of bacteriology by all obstetricians in hospitals where such epidemics occurred?

Meigs provided a straightforward explanation for his persistent denials of contagionist theories. Writing in 1854 "On the Nature, Signs and Treatment of Childbed Fevers," he said (5), "Most assuredly, could I but once bring myself to believe in the contagion of childbed fever, I could never afterwards be induced to practise my Art." The practical reason was stated—intolerable emotional conflict. In the text from which the foregoing was quoted, the illogic of his categorical denial was illustrated by his recognition of the dangers of dissection

wounds and his immediate rejection of any analogy between this and puerperal fever.

That was how Charles D. Meigs tried to deal with the obstetrician's dilemma; that is to say, how could a doctor deliver a pregnant woman with a clear conscience if he believed he might cause her death?

Straightforward denial on the Meigs model was impractical because it was obviously wrong and was recognized to be wrong by his contemporaries. A more satisfactory form of denial was to accept contagionist theory but deny personal applicability. Dr. Alfred M'Clintock of Dublin left a lucid account of this. M'Clintock had published, in 1848, when he was only 27 years old, an obstetrical text (6) in which he wrote, "Notwithstanding all that has been said or written to the contrary, we think that the contagiousness, or, to use the more explicit term suggested by Dr. Christison, the 'communicability' of puerperal fever in all its forms is a fact established on the most irrefrageable evidence, so much so that it would now be almost criminal for any practitioner to act on the opposite assumption."

From 1854 to 1861 M'Clintock was Master of the famous Rotunda Hospital in Dublin, which prior to that time had had an enviably low maternal mortality rate, ranging around a mean of about 1.5%. Under M'Clintock, the rate for 7 years was 2.5% with an epidemic in progress at the end of his Mastership (7).

In 1869, eight years after completing his Mastership, M'Clintock took part in an extensive symposium on puerperal fever conducted by the Dublin Obstetrical Society. He restated his belief in contagionist theory but added illuminating sidelights, as follows (8): ". . . puerperal fever is about as contagious as erysipelas, or ordinary continued fever, but no more. It is very desirable that this question should be settled and the truth made known, as there is a widely prevalent opinion that metria of every kind, whether zymotic or non-zymotic, is preeminently and obstinately contagious, and under this idea practitioners have sometimes incurred weighty censure and have been stung with much self reproach, when, in truth, they were clear of all blame.

"A great deal of the evidence which has been adduced by writers in support of contagion is open to the serious objection of proving too much. Take for instance the case of Dr. Rutter of Philadelphia. Who can for a moment believe that the contagion of puerperal fever should cling to a medical man during a ten days' rustication at 35 miles from the scene of his practice, and after a course of bathing and shaving (even of his head!) and putting on an entirely new suit of wearing apparel? If such were the contagiousness of this disease, one or other of two consequences must ensue—either that puerperal fever would be permanently rife among our patients, or that every practitioner should, on the first occurrence of a case, entirely relinquish his obstetric practice for some weeks or months.

"After twenty-five years' practice I can conscientiously aver that no single instance ever occurred where there were the remotest grounds for supposing that I carried contagion to a patient; but then I was always careful to use ordinary precautions. . . ."

M'Clintock pointed out the capriciousness of puerperal fever in the hospital and said, "Whilst admitting that zymotic metria is, in all respects, contagiousness included, on a parallel with erysipelas, I must, by parity of reasoning, reject the contagiousness of the non-zymotic local inflammations, whether uterine or peritoneal, incident to childbed . . .

"Though but a limited contagionist,

still I hold very strongly the producibility of puerperal fever by inoculation. . . . The experience of Dr. Semelweiss [*sic*] at the Vienna Lying-in Hospital is, no doubt, familiar to you all . . ." By careful use of his language and attaching meanings that suited his needs, M'Clintock was able to retreat gracefully from his uncompromising position as a young practitioner by straddling the issue of contagion, thus leaving his reputation as a contagionist intact. Yet he could successfully deny personal involvement in transmission of disease to his patients.

The obstetrician's dilemma not only continued, but was intensified by the discovery of bacteria by Pasteur in 1869, and the identification of streptococci in purulent discharges from a puerperal fever patient, also by Pasteur, in 1879 (9). Oliver Wendell Holmes had continued to promote the image of the physician as a private pestilence if any of his patients developed puerperal fever. In many cases, this image was unfair, unreasonable and unscientific, but the concept had an obvious and natural appeal, the more so after discovery of bacteria. Dr. Wm. T. Lusk reported in 1885 (10): "There is, however, a survival of the older ideas, chiefly to be seen among the laity, in propositions to secure absolute immunity from puerperal fever in hospital patients by confining them in wooden structures or conducting births under carbolic acid spray."

Lusk tried to deal with ". . . the charge that the physicians holding obstetrical appointments in public institutions are active disseminators of puerperal fever through populous communities . . ." by citing a survey conducted among New York physicians to determine the numbers of maternal deaths in close sequence in their practices over a nine-year period. Only 36 of 1200 physicians reported 2 or more maternal deaths in close sequence, and none of the 10 physicians with appointments at lying-in hospitals were among these. However, as Table I shows, there was not enough information to draw valid conclusions. One can guess that the survey results may have been used to strengthen the image of hospital obstetricians and give them a little emotional support as they tried to deal with the appalling hospital epidemics of puerperal fever that got worse instead of better after the discovery of bacteria. Lusk's comforting report of their private practices did not explain away an 18% mortality in an 1872 epidemic at Bellevue Hospital when 28 mothers died among 156 confined in that year. This is shown in Table II. Bellevue was not unique. Eleven years later in 1883, 30 of 345 mothers died after delivery at New York Maternity Hospital. Their previous eight-year average mortality was 4%. The staff had tried all the known direct antiseptic methods and techniques, including intrauterine irrigation of carbolic acid or mercuric chloride. It may not surprise you to learn that such drastic chemical treatments made matters much worse, so that

TABLE I
Reporting of Two or More Maternal Deaths in Close Sequence and Type of Obstetrical Practice[1]

	N.Y.C. M.D.'s	Hospital Obstet.	Total
Reported 2 or more deaths in close sequence	36	0	36
Did not report 2 or more deaths in close sequence	1164	10	1174
	1200	10	1210

$\chi^2 = .31 \quad p > .5$.
[1] From Lusk, loc.cit.

TABLE II
Maternal Mortality in Two New York Hospitals in Selected Years[1]

Hospital	Year	# Deliveries	# Deaths	Annual Maternal Mortality Rate, %
Bellevue, N. Y.	1872	156	28	17.9
N. Y. Maternity	1875-82			4.0
N. Y. Maternity	1883	345	30	8.7

[1] From Lusk, loc. cit.

one clinic reported maternal mortality dropping from about 4% to 0.4% after such irrigations were stopped.

It seems as if the commonest defense against the impossible dilemma of having to deliver patients whose ghosts might haunt one was something like that of the three monkeys, See no evil—Hear no evil—Speak no evil. If you search the obstetrical literature you'll find relatively few comprehensive reports and analyses of deaths from the leading cause, namely, post-partum infection. A graphic illustration of the sequence whereby bad news became almost no news at all is found in Annual Reports of the Boston Lying-In Hospital. 1879 was a bad year for the BLI. Fourteen of 212 mothers died after delivery, and ten of these had septicemia. This is shown in Table III. The Hospital's Annual Report (11) for that particular year was comprehensive, presumably because it was the worst year up to that time.

"Early in the year symptoms of septicemia began occasionally to manifest themselves, and every effort was made to prevent if possible any serious outbreak of the threatening danger. Antiseptic measures were at once adopted, and the greatest possible care exercised by all the employees of the Hospital. Early in the morning of November 2, a patient who had been in the Hospital nearly 3 weeks was confined with her second child after an easy and normal labor of about an hour's duration. Within 24 hours she developed all the symptoms of puerperal septicemia and died in three days. Within four days from the first appearance of the symptoms, 6 other patients were attacked with the same disease, although every precaution had been taken to avoid any spread of the fever. One of the wards was at once disinfected and a patient who entered in labor was confined in it, being attended by special nurses and a house officer who had no communication with the other sick patients. Within 3 days after her delivery she was also attacked with septicemia. There was no longer any doubt as to what was the proper course to be pursued, and accordingly, at the request of the staff, the Trustees closed the Hospital November 13."

Following this the Hospital was totally disinfected and fumigated and the nurses were sent on vacation. The Hospital stayed closed for almost a month. Contrast this full, detailed report with that for the year 1882 when 16 of 17 maternal deaths were from septicemia.

"During the early part of the year there were several fatal cases of septicemia, from which, however, the Hospital has been almost wholly free since the early part of the summer" (12). And that's all that was said about the highest annual death rate from puerperal sepsis ever reported by the Boston Lying-In Hospital!

Obviously things got better eventually and maternal deaths from sepsis after hospital delivery were considerably lower by 1900. But the obstetrician's dilemma wasn't really solved very well until chemotherapy became available. My final illustration of what was probably a method of dealing with the dilemma comes from the Committee on Maternal Welfare of the Philadelphia County Medical Society (13).

If you look at Table IV, you will notice a sudden drop in the numbers of total deaths between 1936 and 1938. This was when prontosil became available. It is striking that there was about the same sudden reduction in deaths attributed to causes other than infection concurrently with the reduced mortality from septicemia. Comparison of all deaths from infection and all deaths from non-infectious causes for the three years 1934-36 before sulfanilamide with the three years 1937-39, after it, shows that there was not a statistically significant difference between the two reductions, even though the reduction in infection deaths was somewhat greater (Table V). I don't suppose there were necessarily fewer ectopic gestations, hemorrhage, albuminuria and eclampsia, pernicious vomiting, embolus and sudden death or other accidents of childbirth just because of sulfanilamide. I do suppose that all the earlier statistics on maternal deaths were influenced by the probability that when a doctor had a choice in selecting a cause of maternal

TABLE III
Maternal Mortality at the Boston Lying-In Hospital in 1879 and 1882[1]

Year	Admissions	Deaths			Annual Maternal Mortality Rate, %
		Septicemia	Other	Total	
1879	212	10	4	14	6.6
1882	288	16	1	17	5.9

[1] From Annual Reports, BLI, 1873-87

TABLE IV
Numbers of Puerperal Deaths by Cause—Philadelphia, 1931-40[1]

Year	Numbers of Maternal Deaths				
	Septic abortion	Puerperal septicemia	Sub total infections	All other causes	Total
1931	63	46	109	139	248
32	55	40	95	144	239
33	42	35	77	75	152
34	52	43	95	69	164
35	46	34	80	76	156
36	48	38	86	88	174
37	47	19	66	51	117
38	19	18	37	62	99
39	19	17	36	50	86
40	22	18	40	36	76
Total—10 yr.	413	308	721	790	1511

[1] Com. on Maternal Welfare, *loc.cit.*; analysis of 1511 puerperal deaths.

TABLE V
Comparison of Maternal Deaths by Cause, Before and After Sulfanilamide

	Infection	Other	Total
1934-36	261	233	494
1937-39	139	163	302
All	400	396	796

$\chi^2 = 3.47 \quad p > .05.$

death, he was unlikely to choose infection ahead of any other available cause.

Thank God that antibiotics really have resolved the obstetrician's dilemma to a point where maternal mortality committees rarely even suggest that the attending physician might have conveyed infection to his patient. I hope however that this brief review will at least have planted doubt in your minds that persistence of puerperal septicemia until recent times can be blamed logically on anticontagionist doctrine. The medical profession needed a scapegoat, and anticontagionists were handy as long as prevention and treatment of childbed fever were inadequate. They're not needed any more, and I think it's time to recognize the real causes, even though we haven't time to do more than mention them. These were the greatly increased risks of infection caused by use of anesthesia and consequent multiple examinations and instrumental deliveries, starting in 1848. It was these "advances" in obstetrics that created the mortal peril that primitive contagionist ideas and even early bacteriology failed miserably to control. The last decade of the nineteenth century saw the end of the worst epidemics, but as Philadelphia's experience showed, the menace is no further away than a momentary relaxation of vigilance and a pharmacy barren of antibiotics or chemotherapeutic agents.

During discussion of this paper, Dr. W. Robert Penman and Dr. Stuart Mudd drew attention to significant historical facts related to puerperal fever. Dr. Penman pointed out that in 1836 the Preston Retreat Society asked The College of Physicians to advise them how to build and operate a lying-in hospital; The College appointed a Standing Committee on Midwifery with Charles D. Meigs as chairman. In the Committee report of that year, he recommended a plan based on the experience of Dublin's Rotunda Hospital. Under Dr. Robert Collins' Mastership, with strict use of hygienic precautions, the Rotunda's maternal mortality dropped from its previous 1.5% to 0.54% for the four years 1829-33, the lowest it was to be for another 60 years. Meigs outlined a hospital plan with 16 isolated two-bed wards that were to be staffed so that nurses would care for only four women each. Following the Rotunda plan, wards would be used in rotation, with thorough cleansing and ventilation after each use and total isolation for a prolonged period if a patient developed puerperal fever during her confinement.

Although this plan was not put into effect until the Preston Retreat was opened for obstetrical patients in 1865 under Dr. William Goodell, it appears to have been remarkably effective, probably because it was combined with another practice recommended by Meigs, namely, no anesthesia except ether for instrument deliveries, minimal operative obstetrics, and no chloroform. Total maternal mortality at the Preston Retreat was reported as six (three from sepsis, three from other causes) in the first 756 deliveries from 1865 to 1874. Sepsis was reported to have caused only six deaths in 2444 deliveries between 1865 and 1887 when Goodell resigned. Until the discovery of bacteria around 1870 and the identification of streptococci in puerperal sepsis in 1879, he had followed both hygienic precautions and obstetrical practices recommended by the

notorious anticontagionist Charles D. Meigs, once described by F. C. Irving of the Boston Lying-In Hospital as a "barnacle on the ship of progress." It was especially interesting to learn that Goodell had a substantially better maternal mortality than the more "progressive" obstetricians of his time in either Boston or New York who regarded Meigs' views as wholly out of date (Penman, W.R. 1969. The public practice of midwifery in Philadelphia. *Trans & Stud., Coll. Phys. Phila.*, 4 ser., 37: 124-132; Penman, W.R. 1972. William Goodell, M.D., and the Preston Retreat, *Trans. & Stud., Coll. Phys. Phila.* 4 ser., 40: 112-119.

Dr. Mudd drew attention to the report of Dr. Dora Colebrook in 1935 on "The Source of Infection in Puerperal Fever due to Haemolytic Streptococci." Through painstaking research and streptococcal typing, Dr. Colebrook identified the multiple pathways by which patients had been infected, and showed the inadequacy of the "private pestilence" image that Holmes had dramatized with such devastating effect (Colebrook, D.C.: The source of infection in puerperal fever due to haemolytic streptococci, Medical Research Council, London, *Special Report Series* No. 205, 1935).

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From the Historical Collections of the Library

I. Reprinted without Permission: Poetic Recreations of Some Eminent Philadelphia Physicians

By LISABETH M. HOLLOWAY, M.S. in L.S.[1]

For two demanding and possessive ladies, Medicine and Poetry have got on together down the ages surprisingly well. They have shared, more or less amicably, the attentions of some important figures: Oliver Goldsmith, Mark Akenside, George Crabbe, Abraham Cowley, John Keats, Oliver Wendell Holmes, Robert Bridges, and William Carlos Williams. With such names to the credit of the partnership, perhaps a few entries somewhat on the debit side may be allowed. Except as noted, the verse which follows has hitherto remained unpublished.

As a do-it-yourself thing, the writing of poetry can hardly be beat. Cheaper and tidier than Sunday painting, and far easier on the neighbors than bongo drums, it has the further advantage of privacy—unless the poet loses his head and bursts into print, or unless, secretly desiring confession, he allows his journals or commonplace books to fall posthumously into the hands of a library.

The many virtues of George Bacon Wood (1797-1879), for instance, failed to save him from both these errors. A man of exemplary life and genuine religious fervor, an industrious author, putting his *Dispensatory* through fourteen editions, teacher of thousands of students over his twenty-four years as professor of materia medica and theory and practice of medicine at the University of Pennsylvania, and president of The College of Physicians of Philadelphia for thirty-four years, generous and public-spirited—having accomplished much, he attempted more. In 1860 he published anonymously an epic poem, *First and Last, a Poem Intended to Illustrate the Ways of God to Man.* This is the first of it:

> My theme the ways of God to man. Bestow
> Great Spirit, on thy suppliant, bending low,
> In deep humility, before thee, light
> To see his way before this obscure aright;
> And oh! forgive, if darkling he should stray
> From the true path, though seeking it alway.

And, after 259 pages, this is the last:

> Then, with enraptured face,
> [Eve] saw the glorious vision; heard the call
> Which summoned them from earthly life and all
> Its ills; and, when her husband threw aloft
> In eagerness his arms, she fell with soft
> Embrace, the last of earth, upon his breast,
> To which with love undying she was pressed;
> And thus they ceased to breathe, and found eternal rest.

Horatio C Wood, the poet's nephew and his collaborator on the *Dispensatory*, regarded his uncle's work with privileged skepticism (1):

> Dr. George B. Wood had almost a mania for writing, and in his spare time, between his medical work, wrote on almost every subject; so that about a half to a bushel of manuscript was destroyed as worthless by his executors. When the Doctor conceived that possibly he had poetical genius, he had the good sense to recognize that it was not wise to blur his medical reputa-

[1] Curator, Historical Collections, Library of The College of Physicians of Philadelphia.

tion with an unsuccessful book of poetry, so he took the manuscript to London, had it secretly stereotyped, without signature, brought the plates home, told his secret in confidence to Mr. J. B. Lippincott by whom they were printed and put on the market without anyone knowing who was the author except the two men. Of course the venture was a failure, but the medical reputation was preserved.

The author destroyed all the copies he could get his hands on: in 1917 Horatio C Wood did not think there were six copies extant (2). One of the College's two copies was given to us (at Weir Mitchell's prodding) by Osler, who seems to have taken a dark Celtic pleasure in preserving for posterity George Bacon Wood's poetic downfall.

As already suggested, versification is perhaps the ideal shipboard recreation, requiring only pencil, paper, and a secluded spot aft, from which to fling one's failures into the vast wastebasket of the Pacific Ocean. William Samuel Waithman Ruschenberger (1807-95), the College's centennial historian, began his professional life as a naval surgeon. During his extensive travels he kept journals, afterwards reworking them into salable popular accounts of his adventures. He kept a commonplace book in which he jotted down an occasional attempt at verse (3):

The gaudy smiles that round thy lips
In joyous gambols play,
Are nectar to my gazing eyes
And drive dull thoughts away.

Love and death were Ruschenberger's principal poetic topics. He copied off an epitaph by Captain Henry G. Ashmead (1738-1818), written by himself, and found, says Ruschenberger, in a "Philadelphia burying-ground," and also in the *Franklin-Gazette* of Baltimore for November 5, 1818:

In life's hard bustle on the troubled seas
Through many a storm and many a prosperous breeze,
Through summer's heat and winter's chilling blast,
From the torrid to the frigid zone I've past;
Through sickly climes, where each contagious breath
Spreads desolation by untimely death.

One hundred voyages through unnumbered toils,
I've sailed at least five hundred thousand miles;
Been taken, sunk, and oft times cast away,
Yet weathered all in this close port to lay;
Where a dead calm, my weary bark doth find,
Obliged to anchor for the want of wind.

Here undisturbed, at rest I shall remain,
Till the last trump calls up all hands again;
And what new perils I shall then go through,
No human reason ever yet could shew—
But the same power that leads through earth & sea,
Will doubtless lead me through Eternity.

Ruschenberger contemplates Ashmead's character from the under side:

H---- A---- is dead at last
And may the Devil hold him fast,
And, when over old Charron's ferry,
Send him Minister Plenipotentiary
To the moon—or more distant place
That he may never show his face
To any of the Christian race—
May his ghost on Afric land
Be ever doomed to sort the sand—
Or on India's burning plain
May the sun melt out his brain
[And] in his skull fritter, burn
And from his eye balls hot ichor run,
Like molten lead scald his cheek,
And may he forever pity seek
Without its ever being given
Either here or in heaven.
(If perchance he there should go)
May a hot sirroco blow
And force down to Hell below—
From post to post may he fly
And never find where to die,
Or tied to a rock all alone
Forever there to sigh and groan—
And on his skin may every pore
Become a filthy running sore—
May he never never rest—
And of all creation be the pest—
May the Psalm one hundred nine
In all its curses against him shine.
—Pacific Ocean 1827.

Clearly, this does not meet Wordsworth's definition of poetry as taking its origin from emotion recollected in tranquillity.

Sailoring has always been held—at least in literature—to combine a high degree of efficiency with a high incidence of eccentricity, and certainly William Paul Crillon Barton (1786-1856) qualified in both respects. By turns naval surgeon and teacher of botany and materia medica at the University of Pennsylvania and Jefferson, he became the first chief of the Bureau of Medicine and Surgery of the U.S. Navy, and effected important reforms in naval medical practice. His second and third names, assumed at Princeton in accordance with a peculiar custom of the Class of 1805, were incorporated into his name and worn, so to speak, for the rest of his life, thus earning him the further nickname "Alphabet" Barton. He was also given to dreaming in allegorical fantasies, and to total recall upon awakening, or so he maintained.

Two literary effusions of this sort remain, one at the University of Pennsylvania Library, which was published in 1903 by William Pepper (4) with the note, quoted from the last page of the manuscript, that "This dream was entirely composed and written between the hours of 7 o'clock A.M. and 3 P.M. of Sunday, the 18th of Feb., 1821, and delivered as an oration before the Phila. Medical Society, without any material revision, on Tuesday afternoon, the 20th Feb., following. W.P.C.B." In this "dream," he drew satirical and sometimes caustic portraits of present and past teachers in the University's Medical Department; similarly, in our manuscript, which he calls a "fantastic vision of the imagination," the rivalry between Jefferson and the University Medical School is set forth in allegory. The conclusion is inescapable that it too must have been very rapidly produced. It is entirely in prose, except for the conclusion (5):

> Scarce had I finished my invocation, e'er a water nymph arose from the lake, in majesty and impressive silence. Her hair was streaming with long flowing locks—her brow bound with poppy leaves, the soothing influence of which I felt at once. In her left hand she held a sprig of Belladonna, which I inferred had been the cause of the madness I had witnessed, and in her right an olive branch intwined with poppy—indication of approaching peace and tranquillity. She gracefully tossed aside the now ruffled surface of the lake which as I have already remarked I believed symbolic of the present time—and having divested herself of their agitating influence, by the actions which water fowls perform for ridding their feathers of water, she sang in a melodious, clearly articulated and soothing voice, the following words:

> Here in troubled waters thou hast sought
> My prediction of events to be,
> When the cause that's now distraught
> Is from its trammels to be free.
>
> Then thus I come at thy desire
> From the bosom of the deep
> To say thy foes e'er long must tire
> And for their vain folly weep.
>
> Burn thou the lamp of Truth
> And with the oil of knowledge fill it
> Trim it for the good of youth
> If sloth creep in, why quickly kill it
>
> List to *no* caution, save that one
> Which warns thee not to credit foes
> The idle set aside as thou'st already done
> And straightway to fame thy temple goes.

After such heady stuff, it is pleasant to descend to the more familiar country inhabited by George Milbry Gould (1848-1922). Himself a worker in words, as compiler of medical dictionaries and editor of medical journals, he seems to have come naturally to the writing of occasional verse, some of which he published in 1897, under the title, *Autumn Singer*. The following lines, however, appear to be unpublished (6):

The Russet Shoes

The Summer girl, in lawn attired,
With dainty feet in russet shoes.—
How can she fail to be admired,
Or how love's homage now refuse?

What summer girl? My heart replies
Sweet Edith, gay in russet shoe
With merry, love-lit, laughing eyes
Will she heart's homage still refuse?

Do not, dear heart, true love despise,
Nor all thy precious gifts abuse;
No longer slay with laughing eyes,
Nor crush my heart 'neath russet shoes!

July 1894

The Deaf Man,
By One who Knows

Oh! what a bore a deaf man is
With hand behind his ear,
Pretending still to transact "biz,"
Yet not a word doth hear.

When people's lips he sees quick move,
He thinks they talk of him,
Yet never waits the fact to prove;—
Oh! what a silly whim!

He interrupts, yet should be still,
Be seen, and not be heard;
It seems as if he never will
Be other than *absurd!*

How kind are all who patience show,
To this distressful wight
Nor let him see they feel and know
How dreadful is his plight!

By gentle ways, without loud word,
Their meaning they impart,
In treating him as if he heard,
By kindness reach his heart.

To such blest souls, "the salt of earth,"
This deaf man's thanks are giv'n,
May life for them great joys give birth,
Still greater joys in Heav'n!

July 24, 1894

Twenty two!

Had I but known that you
Climbing life's flower-decked hill
Had reached years twenty two, —
Bright years that joys now fill,
Quickly I would have sent
Congratulations true;
With every compliment
You're well entitled to.

Beauty and grace combined
United are in you;
Keen wit to quicken mind;
Dear heart as sweet as true;
Such gifts are rare to find,
Such charms at twenty two!

May happy coming years
Bring greater joys to view!
Bright eyes be kept from tears
As now at twenty two!
Let not the memory fade
Of him who writes this verse
In praise of gentle maid
Her virtues to rehearse.
May she be gay and charming too

At ninety, as at twenty two!

June 5, 1895

But the heroic Muse[2] will not stay down for long. As might be expected, she comes bustling in as soon as she hears of a death in the family. When the great Benjamin Rush died in 1813,—and even before!—his students fell hastily to scribbling in their notebooks:

Eulogy on Rush

While Empires totter and in ruin lie
And monarchs fall and with vain glories die,
Thy name, O Rush! shall brave the wreck of time
And live revered in every distant clime—
Shall cheer the sons of science on their way,
And beam around them with the light of day,
Thy fame shall burn when dazzling lights expire,
And unborn ages feel the glowing fire.

Soft ye Zephyrs, gently blow,
Your ambrosial fragrance, breathe,
While around the sage's brow,
I entwine fair glory's wreathe.
Help my muse to swell his praise,
Far and wide, to lands unknown,
Chant his worth in sweetest lays
Raise him high to honor's throne.

[2] Calliope.

Lo! where he comes with robes of science drest,
The fire of genius glowing in his breast,
His silv'ry locks a ray of lustre shed,
And wreathes of glory deck the sage's head
While health and vigor yield to Nature's sway,
His mind undaunted braves the rude decay
Thus may it flourish till his latest breath
Resign its master to the spoils of death.

These three octets appear in this order, the first being dated June 1st, 1811, on the flyleaves of Thomas Duché Mitchell's notes on Rush's lectures (7). A graduate in the Class of 1812 of the University Medical Department, Mitchell had a long teaching career in Philadelphia, Cincinnati, Lexington, and once again in Philadelphia. His sentiments of devotion were genuine: he named a son after Rush and, as late as 1853, defended Rush against a "charge of falsehood" in respect to his famous system of treatment of yellow fever.

William Elmer (1788-1836), on the other hand, confined himself to a single couplet (8):

Sleep, venerable Rush, in glory sleep
Since even Chapman must thy praises speak.

Sooner or later, of course, we must face head on, so to speak, the whole poetic *corpus* of, or rather about, Philip Syng Physick, whose "very name . . . especially as borne by a physician, so clearly solicits the attention of punsters that not even its owner's rather formidable personality could be expected to have stayed their hands"(9).

Noting that the first set of stanzas which we propose to consider covers a period from 1792, when Physick returned to this country from his European studies, to his death in 1837, McDaniel continues:

This manuscript turned up in some of the papers of a family . . . whose name is an honored one in the history of American medicine and *belles lettres*. Alexander Mitchell, born in Scotland in 1766, . . . emigrated to Virginia sometime between 1786 and 1789, where he practiced medicine until his death, in his thirty-sixth year. . . . Alexander's son, John Kearsley Mitchell (1793-1858), born in Virginia, passed his adolescent years in Scotland, returned to this country in 1814, and was graduated M.D. from the University of Pennsylvania in 1819, having studied surgery there under Philip Syng Physick. Subsequently one of Philadelphia's most distinguished and popular physicians, he published a book of verse in 1839, shortly after Physick's death, and a little later wrote to a friend: "Poetry has been from my childhood my favorite amusement . . . no task [is] so agreeable as the composition of some little song or ode." The similar tastes of his famous son Silas Weir Mitchell (1829-1914) need not be stressed here (10).[3]

McDaniel goes on to warn against the "sentimentally attractive conjecture" that the author of the first two quatrains below might be Alexander Mitchell, and that John Kearsley Mitchell might have completed his father's work after Physick's death, on the grounds that all of Alexander's estate, including his papers, is supposed to have been burned by the British in Washington in 1812. McDaniel also reminds us that S. D. Gross noted, in his *Autobiography* (11), that at Physick's death, "Doggerel rhyme was addressed to him by nervous and invalid women." At any rate, here are the verses:

Young Physick returns to America

We welcome our Philip—this Physic's our physic;
He'll physic our physique and ride into fame.
The rich while he fees seeks, the poor without fee, sick,
He'll cure—and renown'd be Phil's physical name.

[3] S. Weir himself, of whom the College has two or three holograph manuscripts of verse—all published, of course—and nearly all his published poetry, has not been invited on this little pleasure cruise. He is too heavy a passenger, in a literary sense, and would sink our frail little craft the moment he climbed aboard.

His practice

With "pulvis" for powder and pillular ball,
With lancet for lance, he goes armed to the fray.
Sing victory Physick! See the sick one and all
Then bedrid—now bed *rid*—in health blithe as May.

His death

Lo! Philip Syng Physick has put off his physique,
His contest with Death has now come to a close.
The battle was ended by Death's taking Physick!!
Death fillup'd by Philip filch'd physic from Physick
(Some rob'rant foetid, such as those take that be sick.)
Before he could conquer his greatest of foes.

In memoriam

Tho' grav'd on stone we read "Here's Physick's grave"
Despair not, mortals, at Death's vict'ry dire;
Behind him teachings sage he left to save
On page immortal writ, his vot'ries to inspire.

* *

His magic mantle Esculapius keeps—
No shoulders found yet worthy to invest.
Alas! our Godman in death early sleeps
Or he had stood with Physic's God the test. (12)

Having come so far, we may as well go further and repeat the verses which appeared first in *The Court of Sessions Garland* (Edinburgh, T. G. Stevenson, 1839), and most recently in *Philadelphia Medicine*, volume 54, pp. 933 and 942, 1958, with a note by Fred B. Rogers. These are again of multiple authorship, the first five being supposedly by William Erskine, later Lord Kinnedder, and the others by "an accomplished lady, now no more, and an eminent lawyer, afterwards raised to the bench."

Sing Physic! sing physic! for Philip Syng Physick
Is dubbed Dr. Phil for his wonderful skill;
Each sick phiz he'll physic, he'll cure every phthisic,
Their lips fill with Phillip with potion and pill

If music, as Plato does stoutly maintain,
In every disease be a sovereign thing
For calming the spirits and cooling the brain,
Be sure, Dr. Phil, when you physic, to sing.

Lo! Physick! the college permits thee to work
In curing diseases, the greatest of curses;
Syng! dance then with joy when thou think'st at one jerk,
Physick can empty both stomach and purses.

What a fillip to physic if Philip Syng Physick
His skill and his quill to support him shall bring;
Of fever and phthisic, each master and miss sick,
Of Philip Syng Physick the praises shall sing.

Each gap in the science of physic to fill up,
Old Phoebus young Philip Syng Physick bestows;
The potion and pill of Phil still shall we swill up,
And Syng shall be sung at the close of the dose.

The physic of Philip so sweetly to swill up,
Health, joy and delight among mortals shall bring,
With pap and with praise, then, still Philip we'll fill up,
And Loud Io Paeans to Syng ever sing.

O, Death! Since Phil physics thy triumphs are past,
And broken thy dart is and blunt is thy sting;
Phil shall fill us with physic while Physick doth last,
And while Syng Physick physics, we'll Syng ever sing.

To each creature his own is the dearest and sweetest,
My host loves old stingo, and honey the bee;
Then Physick with physic still Philip shall fill up,

And sung by Syng Philip philippics shall be.

When Philip's great son, as old chroniclers sing,
Fell sick, to great Philip[4], for physic he clung;
Then Philip with physic so fillipped the king
That physic and Phil by Timotheus were sung.

Now broke are Phil's pill box and Timothy's lyre,
Let fame to my hero their blazonments bring.
Like Philip's great son he can bleed—or the sire,
Can physic like Philip, like Timothy sing.

Syng Physick for fees seeks the sick man to physic,
But unsought hoped to fee of his physic and skill,
To ne'er let Phil Physick of physic the fee seek,
Nor the sick man be fee sick of physic and Phil.

Let physic sing Philip, for Philip Syng Physick
From plain Philip Physick is dubbed Dr. Phil,
Sing Syng then, each patient, while Philip shall physic,
And Physick shall fillip with potion and pill.

From Apollo the god is of physic and song,
Each schoolboy, I think, will full readily holloa;
Then since to his name the same arts do belong,
Be Philip Syng Physick our Magnus Apollo.

Perhaps it is as well that our punsters—or most of them—are anonymous. "A man who could make so vile a pun would not scruple to pick a pocket" (13).

The following comes from the volume of verse referred to above, which John Kearsley Mitchell published in 1839, entitled, *Indecision, a Tale of the Far West, and Other Poems.* It possesses a double interest for us, having as its author one famous Philadelphia physician, and as its subject another.

Dedicated
To N. Chapman, M.D.

Dear Doctor, though I hae the will,
I fear I want poetic skill
To do ye muckle credit;
But yet I'll imp my youthfu' wing,
And o' my guid preceptor sing,
Though ye y'ersel may dread it.

I've aften wished for Burns's pen,
And thochts frae Ramsay's fairy glen,
To do ye fitting honour,
But tak the will and no the deed,
My muse, the jade, awa will speed,
Sae I maun e'en get on her.

Ah! weel I mind when first I saw
Ye laying down the morbid law
O' nature to the student;
To dry detail and dusty lore,
Brocht frae y'er inexhausted store,
A new enchantment you lent.

Frae worthies o' the aulden time,
To those wha yet were i' their prime,
Ye drew y'er rich resources;
And last, not least, frae y'er ain sel,
Baith thochts and words o' magic spell
Adorn'd y'er ripe discourses.

Wi' easy grace and potent sense,
Clear order, a' without pretence,
And learning without show, sir,
Ye charmed the eye, and pleas'd the ear,
And made y'er thochts sae richly clear,
The darkest truth did glow, sir.

But faith, I scarce believ'd my eyes;
Ye took me, sir wi' sair surprise,
When mang y'er friends I saw ye
Let loose the wit by science chain'd—
Humour that nae ane ever pain'd—
Oh! thus I'd like to draw ye!

They little ken ye wha hae known
Y'er science and y'er skill alone,
Though they are mair than ample;
The racy pun, rich repartee,
The gushing joke frae malice free
Wad na complete the sample.—

But better far, a heart that ne'er
Did o'er a human ill forbear

[4] Philip was the name of Alexander The Great's physician.—*F.B.R.*

To heave a feeling sigh,
That readily forgave a foe,
And never dealt a jealous blow,
In keenest rivalry.

Mair I might say, but this I fear
E'en frae a friend ye'll hardly bear,
Sae I'll nae mair offend ye;
Though if ae man beside y'ersel
Says that the truth I dinna tell,
That man has never kenn'd ye.

Perhaps we cannot do better than to conclude our aimless ramble among these old thickets of forgotten verse with a New Year's wish from an eighteenth-century drinking-song, found in a commonplace book (14) belonging to Benjamin Alison (1745-82?):

Enough both of Woman & Wine, Jove had known
And to follow the Chace next, was anxiously grown.
He beg'd from Diana her horn and her hounds
And nimbly pursued the Stag over the grounds.
The cry of the hounds
Shook the hills all around
While Echo repeated the musical sounds
And Jove, charmed with the chace, with a nod swore by Styx
These blessings, attendant on Hunters, to fix.—

From Pain to be free & from Care to be void
Nor with jealous fears shall your thoughts be anoy'd
Revered by your friends, by your Wives still carest
And of Innocence, Freedom & Myrth be possest.
With a Flask of what's good
Still to cherish your blood
And Strength to assist whilst you traverse the Wood
And to make them more blest, here's the last I've in Store,
May Health crown your days, Jove can give you no more.

* * *

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Memoir of John D. Corbit, Jr. 1910–73

By PAUL O. KLINGENSMITH, M.D.

Mid-afternoon of August 10, 1973, John Donne's bell tolled for the death of John D. Corbit, Jr., and the passing of some part of thee and me. We assuage our loss by homage to his deeds, but solace will come only with time, time spent in service of the kind he gave to his fellow man. In this he left a challenge, for his major effort was directed to ennoblement of the individual from all levels of humanity.

Jack was his own man. Public works brought him into open view, and accolades came his way. In a shy way, he appreciated commendation, but I doubt that the thought of praise ever altered his judgement. The core of his life style was respect for the person; the earth-spring of his motivation was service. Late one afternoon, we walked from the hospital. The ravages of his malignant disease were painfully evident. Not one word did he speak of himself, but only of the need to improve medical care. As usual, he had many constructive ideas.

The lifelong delight he found in the practice of medicine was another mark of his individuality. At the bedside, or in the operating room, he was a master teacher. His knowledge of each patient was detailed and each was treated as a person. Few physicians have more skillfully combined the art and science of medicine.

In the office, or of an evening in his home, countless hours were given in personal counsel. He had the gift of true serenity. He listened, occasionally tugged at his moustache, and made provocative suggestions. The visitor never left empty.

John Corbit was born in Reading, Pennsylvania, May 6, 1910. His early education was local and led him to Swarthmore College. In 1931, he was graduated *cum laude*, and that fall entered the School of Medicine of the University of Pennsylvania. The M.D. was conferred from that institution in 1935. The next four years were spent at the Philadelphia General Hospital. He served as intern, then as resident in obstetrics and gynecology. In 1939, he returned to the University of Pennsylvania as a research fellow in the old Gynecean Institute, but also remained active at PGH.

In 1941, the call came to active duty in the medical corps of the Army of the United States. During the later part of the war years, and for a period after his return from military duty to the University of Pennsylvania in 1945, he was beset by personal problems that temporarily arrested the progress of his career. Almost from a state of complete devastation emerged a man of singular purity of purpose and broad understanding. Thereafter, without interruption, he pursued a course of increasing productivity and service.

Many professional appointments and community responsibilities were earned by his efforts. Successively, he was chief of obstetrics and gynecology at Philadelphia General Hospital, Presbyterian Hospital and Lankenau Hospital. From 1966 until his death, he was director of the division at Lankenau, and professor of obstetrics and gynecology at Jefferson Medical College.

As a Fellow of the American College of Obstetricians and Gynecologists, he was an active member of committees on

Continuing Education, Health Care Delivery, Residency Review, and vice chairman of the Council on Resident Education in obstetrics and gynecology. He was in the vanguard of a group that long ago recognized the need for improvement in medical education and the delivery of superior health care. His contributions to the improved residency and fellowship programs within the specialty of obstetrics and gynecology constitute a noteworthy achievement.

The principal medical avocation to which he gave effort was the disease of alcoholism. Aware that most physicians have little or no useful knowledge of this disease, he pursued the idea that medical education in this field was a basic and sadly neglected need. In the last years before his death, he succeeded in establishing at Lankenau Hospital a six-week elective course in alcohol or other drug abuse for medical students from all institutions. This was the first such course offered in the Philadelphia area. He was active in the National Council on Alcoholism and of its Delaware Valley division, having served as a director of each. In May, 1973, Governor Milton Shapp, on behalf of the National Council on Alcoholism, presented him with the Bronze Key Award, the mark of twenty-five years of meritorious service.

Horticulture was his lifelong source of renewal. He travelled widely, often with horticultural subjects as focal points. His botanical knowledge ranked with that of the best professionals. It was a pleasure to walk with him on his home grounds for he knew each shrub, tree and plant as one of his own kin. The orchid greenhouse had special beauty and variety. However, his tastes were catholic, and in recent years, he took an increasing interest in dwarf conifers. It seems fitting that the memorial to him from his friends is a botanical garden, mostly dwarf conifers, set in a quiet stone-lined corner on the front lawn of Lankenau Hospital.

Surviving are his wife, the former Dorothy Dickinson Robinson; a son, Dr. John D. Corbit, III; two daughters, Mrs. Nancy Corbit Lewars and Miss Margaret Corbit; a stepson, David Robinson, and a stepdaughter, Mrs. Michel R. Brand.

We have lost a friend.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Robert Dunning Dripps 1911–73

By HARRY WOLLMAN, M.D.

Robert Dunning Dripps died on October 30, 1973, at the age of 62. He was a teacher, a scholar, a practicing physician, a leader, an administrator and a humanitarian. The extraordinary success which he attained was due in large part to his many facets.

First, he was a teacher whose effectiveness was widely recognized. He was a winner of the Lindback Award for Distinguished Teaching. He inspired young men to adopt his discipline—more than three hundred residents and fellows came to his department at the University of Pennsylvania for training in anesthesia. His pupils learned well—seventeen of them became departmental chairmen at American universities, filling 15% of this country's chairs of anesthesia. In addition, he trained a large fraction of those who hold academic positions in anesthesia in this country's medical schools.

He was a scholar—a member of Phi Beta Kappa, Sigma Xi, and Alpha Omega Alpha. He wrote over one hundred papers, starting with studies of carotid body reflexes in 1939 with Julius Comroe and Carl Schmidt, colleagues during his tenure in the Department of Pharmacology. In 1973 he was just completing, with Comroe, a study of the role of mission-oriented research in medical progress. He contributed to prestigious textbooks, including Goodman and Gilman's *Pharmacological Basis of Therapeutics.* He collaborated with Eckenhoff and Vandam to write the outstanding introductory text in anesthesia. But primarily he was recognized as a scholar because he was always curious, and he taught his trainees to be the same.

As a practicing physician, he was immensely successful. He was trained in anesthesia by Ralph Waters at the University of Wisconsin in 1941 and was then appointed assistant physician anesthetist at the Hospital of University of Pennsylvania. Under him, anesthesia grew from a division of the Department of Surgery to a separate department of the University. Later he helped others to produce the same transformation at other American universities. He served the University of Pennsylvania as chairman of anesthesiology for twenty-three years. He pioneered in anesthetic techniques, and he did much to develop the practice of spinal anesthesia and the use of cyclopropane. His curiosity drove him to regard every anesthetic administration as a pharmacologic study, and his patients were both willing and grateful subjects.

He was a leader whose abilities were recognized at all levels. He served as president of the Pennsylvania State Society of Anesthesiologists, the Association of University Anesthetists, the Halsted Society, and the American Board of Anesthesiology. He was chairman of committees of the National Academy of Sciences-National Research Council. In 1965 he was given the American Society of Anesthesiologists' Distinguished Service Award. In 1973 he was recipient of *Modern Medicine's* Award for Distinguished Achievement.

As an administrator, this remarkable man was the first principal investigator of this country's first Center for Research in Anesthesia. As chairman of the University of Pennsylvania's Medical

School Curriculum Committee he guided the school through a changeover from an older prescribed curriculum to a newer, more flexible one. He served as a trustee of the Agnes Irwin School, Princeton University, Philadelphia Blue Cross, and The Hope Foundation. His administrative career culminated in his service to the University of Pennsylvania as vice president for health affairs.

As a humanitarian, Robert Dunning Dripps was a giant. And here as elsewhere he was a missionary. In 1948 he served with the Medical Mission to Greece and Italy. He made two trips to the Far East as anesthesia consultant to the United States Army. In recent years he served Project Hope in Ceylon and Tunisia. His enthusiasm for this work attracted others. His former staff and residents have completed seven tours of duty on the U.S.S. Hope, his friends and colleagues many more.

He provided the opportunity for quality training to those who wished to upgrade the level of anesthesia teaching and practice in their own countries. Thus he provided training for the chairmen of anesthesia departments in six overseas universities, including the National University at Seoul, South Korea, and Pahlavi University in Iran. He was elected to fellowships in the Faculty of Anesthetists of the Royal College of Surgeons in England and Ireland.

He was a spiritual man as well, an elder of the Presbyterian Church. He was a patron of the arts, active at the Philadelphia Museum of Art and The Print Club. His portrait was completed by Francoise Andre on the day he died.

Living memorials will include the already-established Robert Dunning Dripps Professorship and the new Robert Dunning Dripps Memorial Fund which will support a Dripps Library of Anesthesia at the University of Pennsylvania. But perhaps the longest living and most important memorial will be the works of his students and their students who follow them. In future years his students will continue to attain leadership positions. And they will attempt to pass on to others as much as they can comprehend of all that he stood for. The future development of the entire field of anesthesiology will benefit on a world-wide scale from the influence of Robert Dunning Dripps.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of John K. Durkin 1901–73

By AUSTIN T. SMITH, M.D.

John K. Durkin, a Fellow of The College of Physicians of Philadelphia since 1947, died suddenly of a heart attack on September 21, 1973, at his home, 49 Woodcroft Road, Havertown, Pennsylvania.

Born in Augusta, Georgia, September 7, 1901, the son of Timothy A. Durkin of Pittston, Pennsylvania and Katharine Keenan of Augusta, Georgia, he received his preliminary education at Wyoming Seminary. He was graduated from Harvard University in 1925 and studied medicine at the University of Pennsylvania where he received his medical degree in 1932. He served his internship at the Bryn Mawr Hospital and entered private practice. He was appointed to the staffs of the Bryn Mawr Hospital and the Pennsylvania Hospital in 1933. At Pennsylvania Hospital he became a clinical instructor in medicine to Jefferson Medical College students who were assigned to that hospital for clinical training. He was attached to the service of Dr. Garfield G. Duncan, clinical professor of medicine at Jefferson. While working in this capacity from 1933 to 1942, he became interested in nutritional and metabolic diseases, particularly diabetes mellitus. He wrote a number of clinical papers on the subject of diabetes, which were published in the *Medical Clinics of North America* and the *American Journal of Medical Sciences*, and became a leader in this special field of medical practice.

The main center of Dr. Durkin's professional life and medical activities, from internship to retirement, was the Bryn Mawr Hospital. He served on the staff of this fine institution for almost forty years and made important contributions to its remarkable growth and development. This was recorded at a meeting of the hospital staff on October 25, 1973, in a resolution prepared and read by Dr. John T. Magee. I have summarized some of his accomplishments from it.

He organized and established the Diabetic Clinic in 1936 and served as head of this department. In 1942, he was certified by the American Board of Internal Medicine and as one of the six ward chiefs worked hard to establish a medical residency program of high quality. He proposed and organized the Medical Residents' Fund which was used to send the medical student residents to national meetings to broaden their training. He prevailed upon the Hospital to provide an office for the residents and donated furniture to equip it. It remains today as a quiet tribute to his thoughtfulness toward his younger colleagues.

Comparable to Dr. Durkin's dedicated service to the Bryn Mawr Hospital and his teaching responsibilities was his service to his country during World War II. He was commisioned as a lieutenant commander (Medical Corps), United States Naval Reserve, in 1940 and helped to organize the Bryn Mawr Hospital Naval Unit, which was ordered to active duty on January 5, 1942. This unit was utilized to help form the medical staff of Mobile Base Hospital No. 3 which was commissioned on March 6, with Dr. Durkin as chief of medicine. On April 12, "MOB 3" departed for the South Pacific where, two months later, it was established in a jungle on American Samoa and was receiving casualties from the Solomons and other battle areas. To

bring this about in such a short term was a Herculean task, as the greater part of the work had to be done by the staff doctors and hospital corpsmen working in a mosquito infested jungle, fierce rain storms and ankle-deep mud. Trained construction workers were not then available. Dr. Durkin played an important part in this accomplishment. The commanding officer, Captain Robert P. Parsons, referred to him as "Our Rock of Gibraltar." He also played a crucial role in the care and rehabilitation of the Rickenbacker party which was brought to "MOB 3" after their rescue. The senior member of the party, Colonel Adamson, developed severe diabetes mellitus, the result of twenty-two days of starvation and exposure on a rubber raft. It was complicated by pneumonia and lung abscess and his survival was in doubt for many days. He finally recovered, due, no doubt, to Dr. Durkin's special knowledge and training and the skill with which he managed this unusual medical problem. Dr. Durkin received a special commendation award for this work.

He again rendered distinguished service in 1945 at Nagasaki, Japan, where as chief of medicine on the naval hospital ship U.S.S. Haven he had the task of supervising and screening prisoners of war brought to the port from prison camps on Kyushu Island. Many were in critical condition from nutritional diseases, such as beri beri and scurvy; many had been exposed to typhoid fever and other infectious diseases resulting from the cold, cruelty, and starvation diet of the Japanese prison camps. Dr. Durkin's special training, skill, and experience in the field of nutritional and metabolic diseases was again put to the test and he came through with flying colors. He was the right man, in the right place, at the right time. The tour at Nagasaki was his last duty of World War II. The Navy Department returned him to reserve status with permanent rank of captain and commendation for the fine service he had rendered during fifty-three months of active duty, most of which was overseas. He resumed his work in private practice and at the Bryn Mawr Hospital, which had been interrupted by the War, and continued in it there until 1961 when he entered the Veterans Administration to serve on the staff of the Veterans Administration Hospital in Coatesville, Pennsylvania. He resigned this position in 1973 because of ill health. During his later years at Bryn Mawr Hospital he served as vice president of the staff, as an attending physician, and as a member of the executive committee. He was appointed consulting physician to the Hospital, Department of Internal Medicine, when he left in 1961.

Dr. Durkin was a member of the Philadelphia County Medical Society, The College of Physicians of Philadelphia, the Diabetic Society, the American Geriatric Society, and the Merion Cricket Club.

Surviving are his wife, Ruth Aulenback Potts, and two brothers, Timothy A. and Edward C. Durkin, M. D., who is presently on the staff of Bryn Mawr Hospital and is engaged in the private practice of internal medicine.

John K. Durkin was held in high regard by all who knew him. His great sincerity and ability were so easily recognized that he quickly won top popularity and high esteem wherever he went. I know of no better way to evaluate him in a few words than to quote from the Bryn Mawr staff resolution prepared by Dr. John T. Magee:

"Dr. Durkin was a learned, careful, kind physician who appreciated competence and strove always for excellence. He enriched the lives of those who were privileged to serve with or under him."

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Pascal F. Lucchesi 1903–73

By BENJAMIN A. GOULEY, M.D.

Pascal F. Lucchesi died suddenly after addressing the Delaware Valley Hospital Association at the Bellevue Stratford Hotel on November 16, 1973.

He was born in Sicily on December 16, 1903, and came to America in early childhood. In that life span of seventy years he engaged in a range of activity, medical and communal, that was enormous, seldom equalled in our time.

He was graduated from the Roman Catholic High School in Philadelphia, had his pre-medical education at the University of Pennsylvania, and then entered the Jefferson Medical College, being graduated with honors in 1926. After his internship at the Philadelphia General Hospital he was chief resident and later the medical director at the Hospital for Contagious Diseases. There he began to develop those abilities and friendships that helped launch his distinguished career. In 1946 he became medical director of the Philadelphia General Hospital, following in the footsteps of Joseph Doane and William Turnbull, maintaining the prestige of the institution at that period of its high national reputation, but at the same time initiating reforms in staff organization and promoting those advances in practice and education consonant with ehanging times.

He entered the United States Army in 1943, and was sent as chief of a medical mission to Uruguay and Brazil, oraganizing public health and sanitation projects in those countries. He retired from service with the rank of lieutenant colonel and with a citation for meritorious service.

In 1952 Dr. Lucchesi became medical director of the Albert Einstein Medical Center of Philadelphia, which had developed as a merger of three hospitals, the old Jewish Hospital, the Mt. Sinai Hospital and the Northern Liberties Hospital. It was a task that would have overwhelmed a lesser man. He will be remembered as an important factor in the progress and development of the center. As a diplomat, as an organizer and at times as a dictator he guided the institution to its present status. He retired in 1971, remaining as consultant.

It was remarkable that despite his heavy hospital responsibility he was able to engage in so many extramural projects. His great energy, his interest and determination brought him into areas of activity and leadership with resultant awards and honors too numerous for this memoir. He was a member of the Philadelphia Board of Education from 1952 to 1963, president of the Philadelphia County Medical Society in 1961, president of the Hospital Association of Pennsylvania in 1965, trustee board member of the United Fund and on the Board of Pardons for the Commonwealth of Pennsylvania. He was professor and head of the Section on Public Health and Preventive Medicine at Hahnemann Medical College from 1949 to 1960. A list of forty-one directorships, appointments as head of commissions and as consultant attest to his enormous activity in the field of public health and hospital administration.

In contrast to his large public presence, his private life was marked by modesty and an easy, quiet demeanor. He seldom mentioned his many honors

and awards, among which was the Strittmatter Award of the Philadelphia County Medical Society in 1947, after he had been the medical director of the Philadelphia General Hospital for only one year. In 1954 LaSalle College conferred on him the honorary degree of Doctor of Science. He was a champion of the underdog, an attitude developed in the early days of his struggle upwards, and he never changed. He was interested in the medical problems of the poor, both here and in his native land, and for his contributions the Italian government conferred on him high honors.

Pat, as his friends knew him, will be remembered and missed by a host of physicians and civil lay leaders who worked and counselled with him in his great years at both Philadelphia General Hospital and the Albert Einstein Medical Center. He is survived by his wife, Katherine Becque Lucchesi, who was a graduate nurse at Philadelphia General Hospital, and four lovely daughters.

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Memoir of David J. Reinhardt, III
1925–74

By LEWIS B. FLINN, M.D.

Dr. David J. Reinhardt, III, a Fellow of the College since 1958, died very suddenly in Lewes, Delaware, on June 16, 1974, at the age of 49. He was a member of the Beebe Clinic in Lewes, a port at the mouth of the Delaware River of considerable historical interest. Beebe Clinic serves a large portion of southern Delaware. Dr. Reinhardt was chief of cardiology. Dying at the untimely age of 49, he will be sorely missed at the hospital and by his many friends and patients in the community.

Dr. Reinhardt was born in Wilmington, Delaware. He was a graduate of St. Andrews School, Middletown, Delaware. He spent about two and a half years in the European Theatre in World War II where he was a Sergeant in the 76th Infantry Division. After the war he completed his pre-medical training at the University of Delaware and was graduated from Jefferson Medical College in 1951. He was a house officer at Bryn Mawr Hospital and at Pennsylvania Hospital where he served under Garfield G. Duncan, M.D. He spent a year as an exchange fellow at Guy's Hospital, London. He practiced for a time in Philadelphia and then moved to Wilmington, his home town. He was director of the Hypertension Clinic at the Delaware Hospital. He became president of the Delaware Heart Association. He published numerous articles having to do largely with hypertension. He was certified by the American Board of Internal Medicine and the Board of Cardiology and was a member of various national and international societies having to do with internal medicine and cardiology.

He was attending chief of medical services at the Wilmington Medical Center until he moved to Lewes in 1968 to head the cardiology section of the Beebe Clinic. Dr. Reinhardt was a member of Trinity Episcopal Church in Wilmington and later St. Peter's Episcopal Church in Lewes. He continued as consultant cardiologist at the Hospital for the Mentally Retarded near Georgetown, Delaware.

He is survived by his wife, Mrs. Jane S. Davis Reinhardt, two children by a previous marriage and his mother, Mrs. Elizabeth Andrews Reinhardt of Philadelphia.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Arthur F. Seifer*
1911–73

Arthur F. Seifer, M.D., a nationally known orthopedic surgeon and a member of the medical staff at Phoenixville Hospital, died at the hospital November 14, 1973. He was the husband of Anne (Satterthwaite) Seifer, 10 Beacon Hill Lane, Phoenixville, and was sixty-two years old.

Dr. Seifer was born in Jersey City, New Jersey, a son of Freida (Schultz) Seifer of Jersey City, and the late Fred Seifer. He was a graduate of Temple University School of Medicine and served his internship at the Temple University Hospital from 1938 to 1940. From 1940 to 1943 he was an orthopedic resident, also at Temple, after which Dr. Seifer worked one year at Shriners Hospital, Philadelphia, where he was highly respected.

During World War II, he served in the South Pacific and was chief of the orthopedic section at the 122nd Station Hospital. He was honorably discharged with the rank of major.

From 1946 to 1962, Dr. Seifer was a practicing surgeon at both Temple University Hospital and Shriners Hospital as well as serving with Philadelphia General Hospital and St. Christopher's Hospital, also in Philadelphia.

Dr. Seifer served at the Phoenixville Orthopedic Clinic in 1947 and 1948 and returned there to begin private practice in 1962. He was associated with Dr. Robert E. Brant and Dr. Charles F. Miller with offices at South Main Street. In 1966 he became chief surgeon of the Phoenixville Orthopedic Clinic succeeding Dr. Victor B. Vare.

He was a member of the Chester County Medical Society, the Pennsylvania Medical Society, the American Medical Association, the American Academy of Orthopedic Surgeons and a Fellow of both The American College of Physicians and The College of Physicians of Philadelphia. In addition, he was a former secretary and member of the board of governors of the Eastern Orthopedic Association. He was also a Mason, held membership at the Benjamin Franklin Consistory, and attended the LuLu Temple.

Surviving with his wife and mother are two daughters, Susan, wife of David A. Bloomer, Jr., Cheyenne, Wyoming, and Barbara Anne Seifer, St. Petersburg, Florida; a sister, Mrs. Albert J. Hastaba, Little Falls, New Jersey; and two grandchildren.

* This memoir is reprinted with permission from the *Phoenixville Daily Republican*, 225 Bridge Street, Phoenixville, Pennsylvania 19460.

Memoir of William Tomlin Snagg 1911–73

By PAUL MECRAY, JR., M. D.

William Tomlin Snagg died on April 23, 1974, at his home, Slow Gait Farm, Medford, New Jersey, of a Pancoast tumor.

A graduate of Ursinus College and the Medical School of Temple University, he served his internship at Temple Hospital. Except for four years as a flight surgeon in the South Pacific, where he was cited for bravery, his professional career was spent in Camden in association with The Cooper Hospital. During his early years as an internist, he developed a large practice in gastroenterology where his quiet, calm, reassuring demeanor attracted an enormous following. Bill gave up private practice in order to organize the Department of Medical Education of The Cooper Hospital, where he became its first full-time Director and where he remained active until a few days before his death.

He was an influential member of an enormous number of boards and committees throughout the Delaware Valley. He shared with his wife, children, and grandchildren a love of the outdoors, his farm, and his horses. He will be remembered as a raconteur as well as a capable physician and organizer.

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Memoir of Rendall R. Strawbridge 1909–74

By MALCOLM W. MILLER, M. D.

On July 28, 1974, Rendall R. Strawbridge, M.D., dedicated and beloved physician, devoted husband and father, loyal friend and Fellow of The College of Physicians of Philadelphia for many years, died at Lankenau Hospital after a month's traumatic illness.

Rendy, as he was known most affectionately by his many friends, was born in Philadelphia, Pennsylvania, April 25, 1909. In 1930 he received an A.B. degree from the University of Pennsylvania where he went on to be granted an M.D. degree in 1933.

On May 26, 1934, he was married to Martha Fisher of Lewes, Delaware, who was a nurse at Abington Hospital and whom he met while an intern there from 1933 to 1934. Their marriage was blessed by five wonderful children: Particia Ann, Rendall R., Jr., Maragaret Elizabeth, Marilyn Grace and David Robert.

Following his internship at Abington Hospital, Rendy continued there as a member of the staff in internal medicine. For several years he utilized the National Stomach Hospital and subsequently became associated with Lankenau Hospital where he ultimately spent full time. He was also a member of the teaching staff of Jefferson Medical College.

Dr. Strawbridge was a member of the Philadelphia County Medical Society, the Pennsylvania Medical Society, the American Medical Association, the American College of Physicians, the College of Physicians of Philadelphia, the Union League and Seaview Country Club. His hobbies were sailing, swimming and photography.

Rendy was an extremely warm, friendly and generous person who is greatly missed by each of us who knew him.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Per-Olof Gabriel Therman 1910–72

By ROBERT ERWIN JONES, M.D.

The lifetime of Per-Olof Gabriel Therman, M.D., spanned two continents and was devoted to unifying two subjects, neurophysiology and psychiatry.

Dr. Therman was born on January 8, 1910, in Kuusankoski, Finland, the son of a general practitioner in the town of Borgå. Some of his happiest recollections were of his years as a student in the Svenska Lyceum in Borgå. He earned his medical degree at the University of Helsingfors (now Helsinki) in 1938, preparing a doctoral thesis on the neurophysiology of the retina. He had completed an internship at the same university and already had published results of some research in electrophysiology with Professor Ragnar Granit before he had the opportunity to become a Rockefeller Fellow in 1938-39, when he worked in neurophysiology with Professor Alexander Forbes and Dr. Hallowell Davis at Harvard Medical School. On this same visit to the United States, he worked briefly at the Rockefeller Institute in New York and at the Marine Biological Laboratory, Woods Hole, Massachusetts.

An admirable patriotism made him return in 1940 to Finland, where he was immediately drafted into the Finnish Army. After working as a physician in an army hospital, he served during the Finnish-Russian War as a battalion physician and head of a first aid hospital, gaining the rank of captain in the medical corps.

After the war, Dr. Therman was named assistant professor of physiology at the University of Helsingfors, but in 1945 he again won a Rockefeller Fellowship which took him to the Nobel Institute for Neurophysiology at the great Karolinska Institute in Stockholm in 1945-46 and to the Neurology Clinic of the Serafimer Lasarettet in Stockholm in 1946-47. He returned to Finland as chief of the Neurology Clinic at the Hospital of the University of Helsingfors. Toward the end of 1947, the Institute of the Pennsylvania Hospital in Philadelphia was searching for a director of experimental research and clinical investigation, and upon the recommendations of Professor Lorente de Nó and Professor Carl-Gustav Bernhard, the job was offered to Dr. Therman. He occupied this post until his death on January 14, 1972, at the age of sixty-three.

Dr. Therman's basic neurophysiological research was on the electrical conductivity of nervous tissue, and he published thirty-seven articles. He became assistant professor of neurophysiology at the School of Medicine and at the Graduate School of Arts and Sciences of the University of Pennsylvania.

As a young man, Dr. Therman had brief experience in psychiatric practice at the Lappvik's Mental Hospital in Finland. In his adopted country, he continued psychiatric training at the Department of Psychiatry of the University of Pennsylvania and received American Board certification in psychiatry in 1958. As director of the Clinical Laboratory at the Institute of the Pennsylvania Hospital, he supervised some of the early trials of lithium carbonate in the treatment of manic-depressive illness, winning the gratitude of many patients who had suffered with recurrent mania for years. As chairman of the Institute's library

committee, he assured that the Institute's library maintained its preeminence among psychiatric libraries. He always encouraged the psychiatric residents in training to design and pursue research projects.

Dr. Therman was a member of the American Medical Association and its state and city branches, and of the American Psychiatric Association, the Pennsylvania Psychiatric Society and the Philadelphia Psychiatric Society. He belonged to the American Association for the Advancement of Science and the American Physiological Society. He was a Fellow of The College of Physicians of Philadelphia.

Dr. Therman was first married in 1936 to Dolly Linnea Bonsdorff and had two children, Peggy and Johan, all of whom reside in Finland. He was remarried twice, to Dorothy Harrison Talbot and to Nancy Grant Hayward.

Literate and knowledgeable, Dr. Therman was a man of decision and determination. A Continental courtliness characterized his manner, and a twinkle in his Scandinavian blue eyes accompanied his laugh. He was generous to those favored to be his friends. He found pleasure in being a patron of art. He was very fond of Jamaica, where he vacationed, and promoted exchange visits with the Department of Psychiatry of the University of the West Indies. He was especially admired for his fortitude in mastering a handicap caused by a stroke which he had suffered in 1959.

A memorial service was held for him, appropriately, in the library of the Institute of the Pennsylvania Hospital, which he had supported so effectively. A masterly attempt to bridge the uncharted gulf between mind and matter was made by this man of two continents.

This memoir was prepared at the request of the Council of The College of Physicians of Philadelphia.

Presidential Report

July 1, 1972 through December 31, 1973

By KATHARINE R. STURGIS, M.D.

The year and a half of my College presidency slipped by rapidly. This report will cover the accomplishments, the needs, and a few philosophical reflections.

On July 1, 1972, when I took office following the two-and-a-half-year term of my vigorous predecessor, Dr. George I. Blumstein, the administrative structure of the College was in jeopardy. Charles Ingersoll moved from the post of executive director of the College to the presidency of Children's Hospital, so my first official action was to appoint a Search Committee under the chairmanship of the vice-president, Dr. John P. Hubbard. F. Robert Michael, with an executive background in education, received the appointment. He and I, both new to our offices, stepped into our respective posts at about the same time.

Deeply touched by my election as the first woman president since the founding of the College in 1787, I had hesitated to assume the responsibility of this high office because of my precarious cardiac status. Jack Gibbon, who had chaired the Nominating Committee, insisted that, with his support, I would be able to carry on. Joe Stokes, no doubt pleased in his liberal Quaker heart by the tribute to a woman, encouraged me, pledging his services. I must mention these remarkable men because it was the prospect of their staunch support that emboldened me to assume the presidency. Their sudden deaths in quick succession were so shocking and deepfelt a loss that we have not yet recovered.

As I review the accomplishments, I am amazed to find how typically feminine they have been—stretching finances; extending hospitality; improving housekeeping, decorating, and construction; concerns for enhancing staff health; provision of a warm milieu.

For many years we have been the recipient of funds for special purposes like named lectureships, the interest on which we had been dispensing *in toto* at an expense to the College of more than $5,000 annually. A financial analysis by our competent comptroller, William P. Lutz, enabled us to take a more realistic approach, charging appropriate operational costs to the funds which generated them.

Urgent physical needs were met, such as providing a new roof to protect our treasures and rebuilding and air-conditioning basement quarters for the Medical Documentation Service through Mr. Theodore Kolodziejski's ingenuity. This enabled Medline to move down to the second floor where it is more accessible.

Our application was approved for a federal grant of $50,000 toward air-conditioning the library stacks. This project, delayed by a sheet metal workers' strike, is about completed.

Cadwalader Hall was attractively redecorated with a handsome bronze chandelier, wall-to-wall carpeting, and rehanging of portraits so that our most valuable painting, the Thomson portrait by the great Philadelphia painter, Thomas Eakins, dominates the room. The Women's Committee helped greatly in this project, especially Mesdames Wood, McClenahan, and their decorator consultants. Through the efforts of Bill Blakemore, the Urological Society pre-

sented the chandeliers. Funds given in memory of our late Fellow, David A. Cooper, also helped.

A program for restoration of our outstanding collection of portraits was begun and will operate on a rotating basis. This is under the aegis of the Women's Committee, particularly Mesdames Gibbon and Nemir. The Women's Committee has also undertaken, through the leadership of Mrs. Ingersoll, to rebuild the Herb Garden. Dr. Thomas Rathmell has taken a special interest in our gardens, having had flowering shrubs planted, the last of which, chrysanthemums, are still abloom as I write.

A new seal was designed for the College, using the traditional symbols, and our first flag was designed and ordered.

The employee lounge was air-conditioned and refurbished.

The format of College functions changed. Following scientific lectures, the cocktail hours and dinners are more gala and gracious. Mr. and Mrs. Michael went to no end of trouble to deck our halls with flowers and candles. Mr. Michael unearthed silver in our library safe—such as a very handsome loving-cup, formally presented to the College in 1886 by S. Weir Mitchell on behalf of "two gentlewomen," Mrs. Conover and Mrs. S. Weir Mitchell.

There was a series of social events—from the great dinner in Mitchell Hall given to welcome me and to which I was driven with police escort from the Elliotts' lovely old Morris House by none other than our Fellow, Mark Allam, through the highly successful wine-tasting party to commemorate the sesquicentennial of Pasteur's birth. Dr. Gonzalo Aponte chaired the Pasteur Party; to it came Dr. Paul Tessier, the great French surgeon, Dr. Dominique L. Sterin, of the French Embassy Scientific Mission, and Mr. John W. Fawcett, III, Honorary French Consul in Philadelphia.

There was the poignant symposium and dinner designed to celebrate the 25th Anniversary of Jack Gibbon's first use of the heart-lung machine on a human. The patient, Cecelia Bobolek, is still living, working, and happy. We had planned this originally as a great tribute to Dr. John Gibbon. Jack's death changed the occasion to a memorial. His dear wife, Malie, loaned us his many medals and citations to exhibit in our halls. Malie had worked with Jack on the heart-lung machine. It was characteristic of Jack that he did not keep that first machine for posterity because he was interested in improving it, and so he used the parts to construct a better version. The great Swedish surgeon, Clarence Crafoord, came to speak that evening as did Drs. Denton A. Cooley, Clarence Dennis, W. Dudley Johnson, James R. Malm and Harris B. Shumacker, Jr.

Mrs. Gibbon presented to the College her husband's portrait painted by her famous father, Charles Hopkinson.

A fun evening, "What in the World of Medicine," was co-sponsored by the University Museum with Dr. Froelich Rainey presiding and Jonathan Rhoads, Fran Wood, and me as panelists. This was a unique interinstitutional event, well attended.

New Fellows were received in increasing numbers—114 resident Fellows, eight Honorary Fellows, Drs. Manfred Bleuler of Switzerland, Clarence Crafoord of Sweden, Louis H. Clerf, Martin Cummings, Walton B. McDaniel, 2d, William S. Middleton, Jane Oppenheimer and Carl F. Schmidt, all Americans. Drs. Harold J. Isard, Elizabeth K. Rose, Thomas K. Rathmell and their committee members deserve great credit for their tireless work on the Fellowship Committee. A bylaws change which halved dues for qualified spouses enabled long overdue recognition of the amazingly large number of outstanding physician-husbands and wives in our area.

I had the joy of welcoming into non-

resident Fellowship my own dear daughter, Nancy Boucot Cummings.

Attendance increased at the stated meetings and at the dinners following them. Free parking was arranged for the Fellows, making them feel as cherished as they really are.

Attendance at the Mütter Museum rose from 3,575 in '71-'72 through 3,990 in '72-'73 to 2,290 the first six months of fiscal '73-'74. This was undoubtedly due to the zealous work of Mrs. Moyer, the curator, to the volunteers, and to the joint leadership of Drs. Aponte and Rathmell.

A major error in financial policy occurred. Drs. Dannenberg and Tumen had been piloting our investments for income rather than growth. The Finance Committee called in expert investment counsellors, Scudder, Stevens, and Clark, who advocated an adjustment for growth despite reduced income. This was effected at precisely the time when growth ceased but stock values dropped sharply. Let us hope that the outlook for the long term will soon brighten.

The budget was balanced for fiscal '72-'73 but it was dubious whether it could be balanced for fiscal '73-'74.

Dr. Esmond R. Long, one of our most beloved and eminent Fellows, recipient the Gold-Headed Cane of the American Association of Pathologists and Bacteriologists, was appointed Custodian of the Abbé Collection, following S. Weir Mitchell, Simon Flexner, William Henry Welch, W. W. Keen and William J. Mayo.

Various plans got under way, such as Dr. George Spaeth's Committee on Interinstitutional Cooperation. Plans for College participation in the Bicentennial began to take form. Dr. John L. McClenahan, chairman of the Scientific Program for the Bicentennial, planned symposia and obtained truly eminent speakers on broad subjects, so the College should attract many visitors during the Bicentennial celebration. Dr. Daniel Blain's plans have been frustrated largely because of lack of city funds. The first interview in a series with eminent Fellows was taped. It was with Bob Ivy, then in his nineties.

Our neighbors, The American Red Cross, put on a first-aid program for our employees, and 40% of our staff contributed blood to the Red Cross program. Influenza immunization was provided for interested employees.

The College joined the Greater Philadelphia Cultural Alliance through a generous gift from Mr. Sol Feinstone. Our library explored in detail prospects for a consortium of libraries which would consist of the Academy of Natural Science, Franklin Institute, and The College of Physicians.

The College's Sections—Ophthalmology and Otolaryngology, Medical History, and Insurance Medicine — meet regularly. A Section of General Medicine requested and received authorization to be reconstituted.

Esprit de corps improved among the Fellows. A sad duty fell on my shoulders at the time of the retirement of my revered former Penn professor, Dr. William B. McDaniel, 2d. With characteristic shyness, he refused any dinner, but we presented him with a bound volume of fifty letters from Fellows and colleagues who admired him over the years.

By the fall of '73, it became apparent to my cardiologist and me that I could not carry on to the end of my second term as president. Graciously John P. Hubbard agreed to become president *pro tem* from January, 1974.

To the officers, committee members and chairmen, members of Council, and to the seventy-some staff members, I offer my sincere thanks for diligent work.

Unfinished are many dreams: for the Fellowship, a browsing room; for our staff, a sound medical program; for a concrete long-range planning program.

Most of these can come to fruition through adequate funds.

This wonderful College, now venerable, commands our affection and devotion. It has been a rare privilege to have held the helm in my hands. I thank you for the opportunity and urge all Fellows to support John P. Hubbard, our able leader, by attendance, work, imaginative ideas, financial contributions and, most of all, by patience and understanding.

I have been astounded by the richness of accomplishments of our Fellows and wish our College could better reflect their extraprofessional skills. Ours is still a learned profession. I am fond of our own S. Weir Mitchell's remarks in "Doctor and Patient" in 1888, in which he says about the physician, "It is a question of applicative energy. Few men in early life can do much more than is needed to learn our art and its sister sciences; but, as time goes on, there are many who can add to it other pursuits which greatly benefit them in a wide sense, and enlarge and strengthen their mental powers, or pleasantly contribute to the joys of life, and so even to the growth of a man's moral nature. The wise physician, who is fond of etching or botany, the brush or the chisel or the pen, or who is given to science, does well to keep these things a little in the background until he is securely seated in the saddle of professional success. Then usually he may feel free to reasonably follow out his tastes, and to write, or in any other way insist on freedom to use or make public his results. If only he has the competent fund of persistent industry to draw upon, he will be not the worse, but the better, physician for such enlargement of his pursuits as I refer to, for we may feel sure that in my profession there is room for the direct or indirect use of every possible accomplishment."

So, even if he splits his infinitives, we can still look up to S. Weir Mitchell for rich wisdom. As you sit in Mitchell Hall at a lecture, look up at the portrait highest above the podium and savor the personality of our successful colleague, author of *Hugh Wynne*, *Free Quaker*, and numerous other books. Follow his example in graciousness of living, in excellence of practice, and in loyalty to our College! In loving farewell—Your first woman President—may she not be the last!

Devotedly,
Katharine R. Sturgis, M.D.

Report of the Secretary for the Year Ended June 30, 1974

Stated Scientific Meetings, January 1973 through June 1973:

Dates	*Lectureships*	*Attendance*
January 3, 1973	The 103rd Mary Scott Newbold Lecture The Hon. Judge Lisa Aversa Richette "Who Catches the Throwaway Child?"	152
February 7, 1973	The 31st Alvarenga Lecture Robert H. Ebert, M.D. "The Future of Medicine in a Troubled Society"	178
March 7, 1973	The 104th Mary Scott Newbold Lecture James B. Lee, M.D. "Homeostasis and the Prostaglandins"	87
April 4, 1973	The 1st Ralph Pemberton Memorial Lecture John B. Calhoun, Ph.D. "From Mice to Men"	98
May 9, 1973	The 56th Nathan Lewis Hatfield Lecture John H. Laragh, M.D. "The Renin Axis in Causation, Prognosis and Treatment of Hypertensive Disease"	91
June 6, 1973	The 1st Susan Doerr Brodsky Lecture Manfred Eugen Bleuler, M.D. "Today's Concept of Schizophrenia"	287

Stated Scientific Meetings for Fiscal Year July 1, 1973, through June 30, 1974:

October 3, 1973	The 2nd Catharine MacFarlane Lecture on Cancer Control George Crile, Jr., M.D. "The Breast Cancer Controversy"	220
November 7, 1973	The 20th S. Weir Mitchell Oration Arthur H. Keeney, M.D. "The Automobile as a Weapon"	202
December 5, 1973	The 51st James M. Anders Lecture Professor Oscar Newman "The Effects of the Design of Housing on the Behavior and Attitudes of Residents"	98
January 9, 1974	The 105th Mary Scott Newbold Lecture David D. Rutstein, M.D. "Quality Control, Yes: PSRO's, No!"	164
February 6, 1974	The 32nd Alvarenga Lecture Evan M. Hersh, M.D. "Immunological Aspects of Malignancy"	113
March 6, 1974	The 2nd Susan Doerr Brodsky Lecture Jacques S. Gottlieb, M.D. "Recent Biochemical Studies of Schizophrenia"	157
April 3, 1974	The Robert Abbé Sponsored Symposium Thomas R. Boggs, Jr., M.D. (and) Thomas W. Langfitt, M.D. "The Post-Intensive Care Problems"	47
May 1, 1974	The Henry W. Stelwagon Lecture Sheldon J. Segal, Ph.D. "Contraceptive Research: A Male Chauvinist Plot?"	97

Special Announcements Made at Regular Business Meetings

	Items of Business
January 3, 1973	Eligible for Fellowship at half the annual dues—spouses of Fellows.
February 7, 1973	Conference on Remote Terminal Access to Computer Data Bases at the College on February 2, 1973, attracted 157 registrants;
	The College of Physicians of Philadelphia, the Franklin Institute and the Academy of Natural Sciences received a grant of $7,000 for a study on closer cooperation of their libraries;
	The College has been named recipient of $25,000 from the Boyer Estate.
April 4, 1973	Red Cross First Aid Course to be given at College for staff participation;
	Governor's Council on Drug and Alcohol Abuse to be held at College on April 10, 1973;
	Preparation of Statement by Dr. Jonathan E. Rhoads on State Bill No. 1210;
	The Honorable Arlen Spector to talk at the College on April 11, 1973, on "District Attorney's Office";
	Scientific meeting and dinner at the College on May 5, 1973: "20th Anniversary of the First Open Heart Operation on a Human Being by Dr. John H. Gibbon, Jr.";
	On April 5, 1973, Dr. H. Curtis Wood to talk at College on "Is Zero Population Growth Desirable and Obtainable?"
May 9, 1973	Mrs. John H. Gibbon, Jr. has presented the College with portrait painted by her father, Charles Hopkinson, of past President, Dr. John H. Gibbon, Jr.
June 6, 1973	Presentation of Fiscal Budget for year July 1, 1973, to June 30, 1974, made by the Executive Director, Mr. F. Robert Michael.
December 5, 1973	College flag design has been completed;
	Medline now open in Library area of College for use of the Fellowship.
January 9, 1974	Formal announcement, with deep regret, of resignation of College President, Dr. Katharine R. Sturgis. By act of Council on December 18, 1973, Dr. John P. Hubbard has been named President *pro tem*.
	Recommendation for the reinstitution of a Section on Internal Medicine
February 6, 1974	By act of Council January 29, 1974, appointment of *pro tem* Officers named: From post as Secretary to Vice President *pro tem*, Dr. John L. McClenahan; to Secretary *pro tem*, Dr. Edward H. McGehee.
March 6, 1974	Report of Slate of Nominees for Elective Officers as prepared by the Nominating Committee and approved by Council on February 26, 1974.
May 1, 1974	Announcement of official ballot for Officers, Censors and Elective Councillors;
	Presentation of Fiscal Budget for year July 1, 1974, to June 30, 1975, made by the Executive Director, Mr. F. Robert Michael.

Sections of the College	*Membership*
Insurance Medicine	15
Medical History	200
Ophthalmology	84
Otolaryngology	40

FELLOWSHIP RECORD

January 1, 1973 to June 30, 1973*	Resident Fellows	Non-Res.	Honorary		Hon. Assoc.	Total
			Foreign	Amer.		
As of Dec. 31, 1972	1,174	189	1	5	4	1,373
Died during this period*	-16	-4				-20
Resigned during this period	1	1				-2
Elected during this period	51	2	2	4		59
Transfer from Res. to Non-Res						
Total Jan. 1, 1973 to June 30, 1973	1,208	186	3	9	4	1,410
Total Life Members during this period	45	9				
Total Remission	51	13				
FISCAL YEAR July 1, 1973 to June 30, 1974**						
As of June 30, 1973	1,208	186	3	9	4	1,410
Died during this period**	-11	-2				-13
Resigned during this period	-13	-2				-15
Elected during this period	109	4		2	1	116
Re-Instated	1					1
Transfer from Res. to Non-Res.	-21	21				
Total July 1, 1974 (including Electees as of Council for Apr. and May 1974)	1,273	207	3	11	5	1,499
Total Life Members	45	9				
Total Remission	52	13				

John L. McClenahan, M.D.
Secretary

(and)

Edward H. McGehee, M.D.
Secretary pro tem

Annual Report on the Library*

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THE COLLEGE LIBRARY—1973-74

This Annual Report on the Library covers the eighteen-month period, January 1, 1973 to June 30, 1974. Future Annual Reports on the Library will coincide with the term of the Officers of the College, July 1 to June 30. This transitional report deals primarily with areas of interest presented in the previous annual report.

Library hours: The 1972 annual report noted the restoration of evening and Saturday hours of opening in January 1973. The amount of off-hours use was monitored in 1973 and the results justified the decision to establish the following schedule: Labor Day to Memorial Day, Monday-Saturday, 9-5; Summer, Monday-Friday, 9-5.

FAC Consortium: Last year's report closed with the Pennsylvania State Library announcement of an award of about one third of the amount requested to study the feasibility of closer cooperation among the libraries of the Academy of Natural Sciences, the Franklin Institute, and the College of Physicians of Philadelphia. With the assistance of the FAC Consultant, Herman H. Henkle, director emeritus of the John Crerar Library of Chicago, the proposed budget was redesigned within the limits of available funds.

Studies were made of the three libraries, showing comparative space occupied, collection size, personnel, budgets, income sources, statistics of use, analysis of user groups, service policies and charges, analysis of journal subscriptions and identification of areas of duplication. The consultant identified other libraries in the area with strength in the scientific literature. The commonly accepted objectives were: an integrated acquisition policy, a single extramural service policy and programs, coordinated solicitation of funds.

Funding was requested for a study of interlibrary loan and user traffic patterns to strengthen planning efforts, to provide statistical base lines of pre-consortium use of scientific literature and services and a scale for the measurement of the impact of a regional science-technology library service on information gathering and dissemination habits and patterns in the community. State funds were not available for that study. An application for a grant from the Higher Education Act, Title II-B, Library Research and Demonstration, also failed to win funding.

The final report "FAC-LIS Study" by Herman H. Henkle appeared in March, 1974. Copies of the Study are available

* January 1, 1973-June 30, 1974.

on request. It contains a summary of recommendations, a possible organization chart for an interinstitutional agency (FAC-LIS), and a statement of characteristics and objectives. Appendices include drafts of articles of incorporation, bylaws, contracts, and grant applications.

In April, 1974, the Board of Trustees of the Academy of Natural Sciences tentatively approved the consortium in principle, contingent upon approval of the scientific staff. Subsequently the scientific staff also approved the consortium in principle. In May, 1974, the Board of Franklin Institute and the Council of the College of Physicians of Philadelphia added their approval in principle.

Lack of funding has postponed implementation of the dream, but the participating librarians believe the realization of more effective science-technology library services in the community is contingent upon a collaborative program.

Stack space: Failure to receive grant support for a shifting project was recorded in the previous annual report. The use of "free time" of the regular staff to move books was initiated. However, the small amount of time available imposed a snail's pace on this extensive project. The first phase of this undertaking is to withdraw all nineteenth-century journals from the regular new stack sequences on floors 5 through 2 and to reshelve them in a modified compact fashion on the first stack level. At the end of the period being reported, this shift had progressed from the end of the alphabet forward to MED. (less than one third of the collection).

The space gained by the first maneuver is to be filled with 5-10 years of journals currently shelved in the old stack to gain some space to shelve new additions to the collection. Other alternatives under study are remote storage, microfilming, new building and reduction in library acquisitions.

Stack air conditioning: The grant application described in last year's report was approved and funded in June, 1973 by the National Library of Medicine. Meetings with the architect began in September. In October, Thalheimer & Weitz, Architects and Engineers, prepared a review of the Library Stack Air Conditioning Feasibility Study prepared by J. S. Cornell & Sons, Inc., August 7, 1972. Invitations to contractors to bid were issued in January, 1974. In February, J. Gerngross Corporation was selected to perform the air conditioning and humidity control work in the Library stack areas. A preconstruction conference was held on March 1 to review and discuss subcontractors' proposals. At the end of this report period (June, 1974) construction had begun but a number of factors including a prolonged strike by the sheet metal workers made it advisable to request an extension of the project period by the National Library of Medicine. This extension was granted through December 31, 1974.

MEDLARS/MEDLINE. MEDLARS searches were first offered in August, 1969 at the College through the federally funded services. User orientation sessions to explain this automated access to the computerized data base of citations in *Index Medicus* were offered in September, 1969. In the beginning these searches were formulated at the College and run on the computer in Bethesda, requiring about three weeks delivery time. During the first six months of operation, 151 searches were requested.

On-line access was introduced experimentally by TWX in June, 1970 and in October, 1971 on-line service was begun through a computer terminal acoustically coupled to a telephone line. Fees were charged to recover costs not met by the National Library of Medicine. A public briefing session with participation by NLM personnel was presented at the College in February, 1972.

A very successful public meeting was

held in February, 1973 to report the state of the art of remote terminal access to computerized data bases. Representatives of leading retailers of commercial services and speakers for non-profit and government agencies held the interest of a large audience for a full day's session.

During the early months of 1973 a series of demonstrations of the MEDLINE system was offered to Fellows of the College.

The introduction of MEDLINE permitted the phasing out of MEDLARS searches as well as NLM support of MEDLINE personnel costs at regional libraries by July, 1973. Charges were initiated at the College on January 1, 1973 ($15.00 per search) to determine whether there was sufficient demand on a fee basis to support the College-based services beyond the period of federal subsidy. Services available at that time were: AIM-TWX, MEDLINE, and SDILINE, on-line as well as off-line access to MEDLARS, COMPFILE and BACKFILE.

Since September, 1973 the College has supported 80 percent of the personnel costs, with 20 percent funded by the regional contract in recognition of the costs of demonstrations offered to the community and regional network management responsibilities. The initiation of charges by the College in January, 1973 lowered the volume of demand sufficiently to reduce professional staff time coverage to a three-day week. Effective March 1, 1974 the National Library of Medicine established a maximum charge for MEDLINE services based on one-half hour per search of an analyst's time ($5.00) and communications costs for 20 minutes ($2.50).

Library Committee notebooks. At the suggestion of Claire Gilbride Fox, Ph.D., a member of the Library Committee, notebooks were compiled for members of the Committee. These notebooks are intended to contain basic information presented to the Committee to assist in policy decisions and to orient new members.

The contents of these volumes also suggest items that should be mentioned in the Annual Report for a wider audience.

Evaluation Report. The Committee studied the National Library of Medicine's Evaluation Report of the site visit made at the College on May 8-9, 1973 to review the Mid-Eastern Regional Medical Library Service. They also reviewed the College response. Issues which are discussed include: geographical distribution of service, financial stability of the College, motivation of the College as a participant in the Regional Medical Library network, decentralization of regional services, the historic dependence of Philadelphia medical libraries on the College, medical school libraries' services to affiliated hospitals and coordinated acquisitions policies, efforts to locate material within the region before turning to NLM, development of hospital library consortia, composition of the Regional Advisory Committee, services to individuals, coordination of consulting activities, cost effectiveness and regional availability of reference service, charges for MEDLINE service, audiovisual services, development of computer based systems, regional planning process, Berry Committee proposals, lack of systematic planning in terms of defining long-range goals, intermediate objectives, programs to meet these objectives, and devices for measuring progress toward the objectives.

Major recommendations were 1., to restructure the Advisory Committee, 2., to appoint a director of the Regional Program, 3., to render more service in the western part of the state, 4., to increase effort to provide outreach to the allied health professions, 5., to pursue subregional contracts with the Falk Library in Pittsburgh and the Harrell Library at Hershey, 6., to initiate an ongoing systematic planning process, 7., to

encourage further development of hospital library consortia, and 8., to study and evaluate the regional reference service.

Journal subscriptions. Increasing journal costs and budget deficits motivated a study of lists of the titles currently received. An analysis was also made of the 312 *Index Medicus* titles which were not being received. The Library Committee was supplied with a breakdown of expenditures by the agents who supply most of the subscriptions for 1970, 1971, 1972, and 1973. An article from *Publishers Weekly*, February 5, 1973, "Price Indexes for 1973," was distributed. The Committee reviewed a listing of the 30 most expensive subscriptions ($200.00 or more) received by the Hershey Medical Center. This list was annotated to identify the Philadelphia libraries receiving these titles.

Partly as a result of these studies, 153 titles were discontinued. The Committee agreed not to direct further cuts in recognition of the income-producing aspects of the journal collection through document delivery services and M.D.S. alerting services.

Registrations. The Committee was provided with a list of institutions paying $200.00 and over and an analysis of all individual and institutional registrations. In January, 1974 there were:

Free Privileges

1	hospital intern
32	Fellows' assistants
64	health science students

Paid Registrations

8	hospital residents
5	research fellows
58	non-Fellow physicians
123	commercial institutions
32	contributing non-profit institutions

Library income from these registrations amounted to $41,672. One result of this review was the increase in the minimum registration fee for institutional borrowers from $50.00 to $60.00.

Photoduplication. The Committee was supplied with the names of 19 institutions who paid more than $100.00 for photoduplication during the year.

Acquisition policy. In November, 1973 the Library Committee reviewed the College Library's acquisition policy and was provided with copies of statements from previous Annual Reports on the Library: 1946-47, 1953-54, and 1961-62 (*Transactions & Studies*, 4th ser. 15: 157-58; 22: 122-26; and 30: 240-42). A new statement was prepared for the Committee which recapitulated and updated the previous statements.

The basic principles which have been expanded in this latest statement are 1., a considerable degree of selectivity has been imposed by limitations of available funds and space; 2., the long-standing tradition of regional cooperation leads to the objective of complementing rather than duplicating the strengths of other science libraries in the metropolitan area; 3., emphasis is placed on less-used but more expensive materials when one available copy may serve the needs of all; 4., in-depth collections have developed in well endowed specialty fields encouraging the maintenance of these recognized strengths; 5., the importance of journal literature in the life sciences dictates disproportionate collection; 6., acquisition of widely available journals covered by *Index Medicus* as well as less used titles is dictated by the responsibility of the College Library to its primary clientele, the Fellows of the College, by its designation as a regional medical library, by the provision of current awareness service by the Medical Documentation Service, and by the usefulness of high-yield journals to back up the MEDLARS/MEDLINE and other computerized data bases.

Samuel X Radbill, M.D. The Librarian was accorded the great privilege of participating in the Tribute to Samuel X Radbill given at the College on March 12, 1974. It was a pleasure to be able to

cite instances of Dr. Radbill's library advocacy since 1950 in a paper which appears in the July 1974 issue of *Transactions & Studies.*

W. B. McDaniel, 2d, Ph.D. Dr. McDaniel's retirement in October, 1973 after forty years of devoted service to the College as its Librarian and Curator of the Library's Historical Collections marked the end of an era. Today's Librarian acknowledges his debt to this friend and mentor whose stabilizing influence, self-deprecating modesty, and distinguished scholarship brought honor to the institution he served. Dr. McDaniel's election to Honorary Fellowship in the College testifies to the high regard which he earned from the Officers and Fellows of the College. A more complete appreciation of his dedication to the College and to medical historiography appears in an article by Lisabeth M. Holloway, his successor in the Curatorship. This article, "A Bibliographic Salute to W. B. McDaniel, 2d," appears in the January 1974 issue of *Transactions & Studies*, 4th ser., 41: 171-75.

Myer H. Goldman Foundation. In December 1973 the College received a very generous contribution from the Myer H. Goldman Foundation to the Library Book Fund. Former President of the College George I. Blumstein, M.D., convinced the Foundation of the appropriateness of this welcome support.

Susan Doerr Brodsky Memorial Fund. The College Library has benefitted greatly from this fund which was established to advance the understanding of mental illness in young adults, especially schizophrenia. In addition to the support of a memorial lectureship, funds are used to purchase books and publications in this salient field of interest.

Medical School support. During the period covered by this report, the College Library has continued to receive financial support from Hahnemann Medical College, The Medical College of Pennsylvania, the Pennsylvania College of Podiatric Medicine, the Philadelphia College of Osteopathic Medicine, Temple University School of Medicine, Thomas Jefferson University, and the University of Pennsylvania School of Medicine. This generous and voluntary sharing of the costs of the College Library's community service is eloquent demonstration of "resource sharing" and predates its advocacy by the National Library of Medicine in recent years.

College space for expanding programs. The problems of finding space in a building constructed in 1909 for programs developing almost seventy years later occupied a great deal of the attention of the Officers of the College during the period of this report. Early in 1973 two basement areas were cleared of duplicates and of the collections and equipment of the Institute for the Advancement of Medical Communication to provide space for the Medical Documentation Service which has outgrown its second floor study room space. To facilitate the study of the best utilization of this released library space, the Librarian prepared scale drawings of the rooms involved together with statistics of the space-per-worker occupancy of other library areas such as the Catalog/Work Room, the Librarian's office, and the Packard-Krumbhaar Alcove. A detailed proposal of the utilization of this space prepared by the Librarian was reviewed at a joint meeting of the Library and Hall Committees. The present space utilization of these areas conforms to that proposal.

Personnel. Staff changes noted here cover the period between January 24, 1973 and February 7, 1975. Marybeth Leary resigned as Head of the Serials Department to devote her full attention to motherhood. Her replacement is Ellen L. Batty who previously served as Project Cataloger for the Catalog Division Grant and who received her master's degree in library science from Drexel University in 1973. Dr. McDaniel's retire-

ment from the Curatorship of the Library's Historical Collections is noted elsewhere in this report together with Lisabeth Holloway's appointment to that position. Rebecca P. Canfield resigned as Cataloger to concentrate on homemaking. Her replacement is Joan McKenzie who received her master's degree in library science in June 1973 from Drexel University and who was previously Head of the Regional Photocopy and TWX Section. Matilde Zalinski Davidson, whose time was split between The Regional Reference and Serials Departments, reduced her working schedule after her marriage and continued as Serials Librarian. Ruthanne Henner is now Head of the Automated Data Services of the College. Her assistant is Donna Cullen who replaces Jeffrey Rensch and Elizabeth LaSlavic who held this position previously. Frank Swift has replaced Richard Mascitti as Mail Clerk. Beverly Crane transferred from the Paging Staff to the Medical Documentation Service. Margot van Rossum resigned for reasons of health.

Persons who held positions on the Staff and who are no longer employed by the College include: Carol Clark, Maureen Mullery, James Nolan, Jane Taggart, Patricia Webb, Crystall Lorgere, and Marilyn Wexler.

The College Library and Regional Medical Library Service was represented at the Annual Meeting of the Medical Library Association in San Antonio by Beatrice Davis, June Fulton, Elliott H. Morse, John A. Timour, and Kathleen Vick. The Librarian was elected president of the Union Library Catalogue.

HISTORICAL DEPARTMENT 1973

I. Acquisitions

Gifts (in approximately chronological order):

Mrs. Sallie Light Hacker, of Charlotte, N. C.: 10 contemporary works on the history of opium and other drug addiction; in memory of her father Arthur B. Light, M.D., a Fellow; through John J. B. Light, M.D., Fellow.

J. F. McClendon, Ph.D.: albums, scrapbooks, reprints; through Fred B. Rogers, M.D., Fellow, and Robert H. Hamilton, M.D., Ph.D.

Mrs. R. Stephen Uzzell, of Bryn Mawr: several books belonging to Oliver Hopkinson, M.D. (1857-1943).

Thomas Durant, M.D., former president of the College: a collection of typewritten and mimeographed material on drug safety, issued by the Greater Philadelphia Committee for Medical and Pharmaceutical Sciences, 1963-64.

Mrs. Paul E. Bechet, of Elizabeth, N. J.: the large historical collections of her late husband (1881-1962), a dermatologist and historian of dermatology, including letters to John A. Fordyce (1858-1925), autographs of Alibert and Hebra; important photographs; books and pamphlets not in the Library; and duplicates, the sale of which will benefit the dermatology collections. Through Lawrence C. Parish, M.D., Fellow.

Mrs. Laura Person, of New York: books, engravings, etc., on Albert Schweitzer, M.D., Honorary Fellow: through Fred B. Rogers, M.D., Fellow, who also contributed his collection of Schweitzer organ recordings.

Mrs. John H. Gibbon: books on medical history from the library of her late husband, former president of the College, including the Saunders, 1893 edition of Gross's *Autobiography*, not previously in the College—not even in the Gross Room!

Dr. Willis H. Blayney: manuscript ledger 1804-13, of Arthur Blayney, M.D.: through Mrs. Herbert A. Greene.

Jerome S. Kates: clinical drawings and camp sketches by Herbert S. Kates (1894-1947) at Camp Upton, L. I., 1917-18.

Robert F. Norris, M.D., Fellow, and Mrs.

Norris: letter, 1818, by "Elizabeth" (surname unknown), describing the death of Caspar Wistar (1761-1818); also silhouette and an engraving of him; letters of his grandson, and namesake (1801-67), through John P. Hubbard, M.D., president.

John H. Doane, M.D.: albums and scrapbooks of Joseph C. Doane, M.D.: through Fred B. Rogers, M.D., Fellow.

Mrs. Edward Forster McKeen, of Villanova: family books belonging to members of the Curwen family mentioned in *A Family Tapestry* (Wynnewood, Pa., 1972), a copy of which was also presented to the Library.

John J. B. Light, M.D., Fellow: several books on chiropractic.

Edward Rosenbaum, of Rydal: Thos. Hayes, *A Serious Address on the Dangerous Consequences of Neglecting Common Coughs and Colds,. . . .* (Walpole, N. H., 1808, Austin =891); through George S. Blumstein, M.D., former president of the College.

Mrs. Margaret Whiteside, of Mt. Airy: family letters and memorabilia of two relatives who were patients and friends of Edward L. Trudeau.

Oscar V. Batson, M.D., Fellow: a box of notes and drawings by Joseph Leidy.

Charles E. Rosenberg, Ph.D.: several scarce nineteenth-century books and pamphlets, including three announcements of the Pennsylvania College of Medicine, to complete our collection: and a memoir of Thomas Bateman, 1821.

Mrs. M. Henry Wells, of Chestnut Hill: two manuscript formularies, 1860-69, of Frederick Brown, Philadelphia druggist.

Hans Keitel, M.D., New York: 123 late sixteenth-century portrait engravings of medical men, chiefly by Boissard, in superb condition.

Purchases:

1. Wm. Buchan, *Every Man His Own Doctor, ...* (New Haven, 1816; Austin =339) from Chouké funds.

2. Sir Almroth Wright, *The Unexpurgated Case Against Woman Suffrage* (New York, 1913).

The Section on Medical History, at its Kate Hurd-Mead Lecture on May 16, 1973, generously presented to the Historical Department a gift of $250.00 in memory of the late William G. Leaman, 1898-1973, which is being used to purchase useful reference works to assist users and staff of the Packard-Krumbhaar Alcove of Medical History.

In this connection, it may be well to note that the College currently receives 43 journals primarily devoted to the history of medicine: 8 by gift, 7 in exchange for the *Transactions & Studies*, and 28 by purchase, at a cost of only $347.15.

Affiliation with the American Academy of Dermatology: In the second year of this affiliation, besides the important Bechet gift, a large number of donors made valuable and useful contributions to the collection, including Prof. Franco Bazzi, Milan, Italy; Thomas Butterworth, M.D., Reading, Pa.; J. Lamar Callaway, M.D., Durham, N. C.; Chemical Publishing Co., Inc., New York, N. Y.; Ervin Epstein, M.D., Oakland, Calif.; Prof. Eugenio Follmann, Buenos Aires, Argentina; Samuel B. Frank, M.D., White Plaines, N. Y.; Mrs. Gerald M. Frumess, Denver, Colo.; William K. Hall, M.D., St. Louis, Mo.; Mrs. Samuel Irgang, New York, N. Y.; Mrs. Joseph B. Klein, North Canton, O.; M. J. Lipnik, M.D., Southfield, Mich.; Mrs. Hans Neuberg, Rochester, N. Y.; Maximilian E. Obermayer, M.D., Los Angeles, Calif.; Mrs. Edwin L. Pfuetze, Overland Park, Kans.; Mr. Baird A. Thomas, Kalamazoo, Mich.; Margaret Ann Storkan, M.D., Redondo Beach, Calif.; and Max Wolf, M.D., New York, N. Y.

An exhibit was prepared, of materials chosen by Dr. Parish, for the 50th anniversary of the Atlantic Dermatological Conference, April 13-14, held at the Marriott Hotel, Bala-Cynwyd.

In September, the *Archives of Derma-*

tology published "Bibliography of Secondary Sources on the History of Dermatology: I. Journal Articles in English," by Lawrence Charles Parish, M.D., Lisabeth M. Holloway, M.S.L.S.; Susan Ashby, B.A.; and Jack L. Rovner. This installment contained 586 entries, with a subject index. The important tasks of checking and verification were carried out by the Historical Department, with the support of a grant of $1,650 from the Herman and Ruth Goodman Foundation of New York—in addition to its original grant of $5,000 in 1972. The second installment is currently being prepared for publication—this will list English-language biographies and obituaries in journals.

Cataloguing: The preparation of the manuscripts catalogue continues to be the primary non-service activity of the Department. Over 525 collections have now been examined, described, consolidated, and rehabilitated, as far as our limited resources will allow. Four young people spent a total of 26 weeks, or about 1,000 hours, all told, in the Historical Department, in the summer and afterwards: Andy Curtin (Episcopal Academy junior) volunteered about 30 hours; Karen Adelman (B.A., American University pre-library school students); Betsy Soifer (Bryn Mawr College freshman, Federal Work-Study Program grantee); and Alexander O. Aning (Penn sophmore from Ghana) did highly satisfactory work. Through their efforts, and those of their predecessors, about 8,500 letters have now been brought under bibliographic control, including the miscellaneous scrapbooks of Joseph Carson (Soifer). An undescribed—although not unknown—manuscript by René La Roche was thoroughly examined and identified as an unpublished and incomplete work on fevers (Adelman); the famous Jaeger paintings of the fundus oculi were safely rehoused (Curtin); and the letters of John Ashhurst, Jr., E. B. Krumbhaar, Joseph McFarland, and G. E. de Schweinitz, were calendared (Aning)—to list only part of their activities.

In this connection, Mrs. Marlyn Kemper's generous volunteer assistance to the Historical Collections continues, although necessarily from a distance. Working with only a mimeographed list of the 1,100 slides in the Packard Collection, and a copy of Garrison's *History of Medicine*, and without the slides themselves, she nevertheless managed to create a valuable subject index of about 3,000 cards to this collection.

Books accessioned and catalogued number 125; books and journals accessioned and added, 137; pamphlets, 66; approximately 13,000 cards were filed, including 9,875 for the Portrait Catalogue.

H. Service Activities

In the scale of library priorities, service functions necessarily outrank acquisition and processing functions. *Circulation* of materials from the locked areas totalled 429—within the Reading Rooms only, of course—of which 82 requests were for manuscript materials. *Pictures* were copied by a commercial photographer, for 7 Fellows and 10 others, to a total of 36 items. *Slides* were borrowed by four Fellows. *Reference work* appears to have increased this year, with questions coming from Fellows, non-Fellows, graduate students, hospital and medical school librarians, historians, literary scholars, editors of professional and popular journals, genealogists, film producers wanting props(!), and descendants "looking up Grandfather." Visitors included a surgeon from California, fascinated by the Gross Collection; a botanist from Ohio, seeking scarce nineteenth-century journals; an eminent Midwestern surgeon, surprised at the extent of the collection of early surgery, and a literary editor from Washington, D. C., seeking information on S. Weir Mitchell as Edith

Wharton's physician. To Fellows, we have provided for one a bibliography of bookplates, for another, advice on possible local sources for his bibliography of a French philosopher; for a third, his professor-grandfather's printed case records.

To assist three inquirers, and many others like them, we have prepared and issued to Fellows a list of unique sources to be found in the Historical Department. Among these is a complete set of Dr. McDaniel's *Fugitive Leaves;* a 1,000-item index to citations on the medical history of Philadelphia; indexes to about 8,500 American physicians whose obituaries were published between 1850 and 1906, and a photocopy of the death-indexes of JAMA, 1892 to date; photocopied lists of Philadelphia physicians from all sources, beginning about 1690; and photocopied lists of American medical graduates to 1906 or so—well over half of the 100,000 or more graduates. Unique picture-collections include William L. Bradley's 2,800 negatives of "Philadelphia physicians in art"; Samuel B. Sturgis's collection of over 9,000-odd engravings and photographs; and the College's own Portrait Catalogue, indexing more than 80,000 protraits of physicians appearing in books and journals.

Exhibits: The major displays mounted in the front hall were, among others: 1., some of the College's "unica,"—incunabula, broadsides, pamphlets, and journals thought to be the only copy in existence, at least this side of the water; 2., books from the founding gift of John Morgan to the College Library; 3., gout in caricature, to accompany the Kate Hurd-Mead Lecture by John H. Talbott, M.D., in May; also memorabilia of William G. Leaman, M.D.; 4., landmark works in the history of the treatment of breast cancer; 5., recent papers on the use of the automobile as a weapon; 6., George E. de Schweinitz, M.D., former president of the College, pictures, memorabilia, and works, for the lecture in November which bears his name. Without doubt, the star turn was the two beautifully-mounted exihibits of Joseph T. Freeman, M.D.: the first, in April, on world journals in geriatrics, and the summer exhibit, of colored enlargements of Dr. Freeman's own collection of stamps on aging.

Meetings and classes: In February, Whitfield J. Bell, Jr., Ph.D., brought his graduate class from the University of Pennsylvania for a tour and discussion of the Historical Collections; in November, Fred B. Rogers brought his class in medical history from Temple on a similar errand, when both the Museum and the current collections of the Library were also described and visited. In addition to her regular services to the Section on Medical History, connected with hospitality and displays, on March 19 the Associate Curator prepared and delivered a talk on "The Historical Collections of the Library," after which members of the Section were invited to tour the Cage.

Staff: The services of our volunteer and temporary helpers have already been noted. At the end of August, Ms. Carolyn McAfee resigned; on the first of October, Miss Patricia Connors, a graduate of West Chester State College, with a major in German, took her place as Historical Assistant. All of the activities here reported have depended very heavily on the devotion and good nature of Miss Jean P. Carr, Assistant to the Cataloguer.

The principal event of 1973 was, of course, the retirement of W. B. McDaniel, 2d, Ph.D., as curator of the Historical Collections, after forty years of service to the College. His contributions and career have been noted in a previous issue of this journal. The College and the Library and the staff—especially of the His-

torical Department—are obligated to him for countless acts of courtesy and kindness, and for a high example of scholarship and devotion.

January 1 to June 30, 1974

I. Acquisitions of special interest

Gifts (in approximately chronological order):

Mrs. Gwendolyn E. Braxton: two early charters of Douglass Hospital.

William Southwell: medical certificate signed by William Notson, M.D. (1824?-93), 1850.

Mrs. M. E. Percival: Lecture notes taken by Milton Fraser Percival, (1882-1962), at Medico-Chirurgical College, Philadelphia.

Harold D. Barnshaw, M.D., Fellow: Four letters by William Thomson, M.D., (1833-1907), to C. R. Agnew, M.D.

John J. B. Light, M.D., Fellow: Manuscript minutes, Hahnemann Hospital's Nurses Training Committee.

Charles E. Rosenberg, Ph.D., professor of history, University of Pennsylvania: several scarce pamphlets, and a holograph letter, 1822, from an Ohio physician to his patient.

Fred B. Rogers, M.D., Fellow: numerous books, especially relating to the nonmedical activities of medical men.

Samuel B. Sturgis, M.D., Fellow: collection of early Philadelphia death certificates.

Margaret C.-L. Gildea, M.D.: photograph of S. Weir Mitchell's study.

Miss Sarah Anne Greene Smith: Richard Mead, *Opera*, 1751.

Free Library of Philadelphia: numerous pamphlets, annual reports, yearbooks, and volumes on popular medicine; also *Philosophical Transactions*, 4th ed., v. 3, 1731.

Katharine R. Sturgis, M.D., Fellow: several nineteenth-century volumes on popular medicine; various autographs; her own memorabilia.

Mrs. C. T. Blackmore: manuscripts, drawings, and memorabilia of Charles F. B. Guillou, M.D., (1813-99).

C. M. Steward, M.D.: collection, virtually complete, of the published literary works of S. Weir Mitchell.

Paul H. Neese, M.D.: *Dr. Howard's Private Medical Companion*, 1870 (pamphlet).

R. E. Weibel, M.D.: various books belonging to the late Joseph Stokes, Jr., M.D.

Also, gifts of recent and current books, pamphlets, etc., from Edward V. Gulick; K. Garth Huston, M.D.; Richard H. Meade, Jr., M.D.: Fellow; Fred B. Rogers, M.D., Fellow and Charles E. Rosenberg, Ph.D.

Purchases:

1. Parrish, Joseph, 1779-1840. Lecture notes, taken by Joseph Paul (?-1842, M.D., U. Pa., 1831); 1 volume, manuscript.

2. Wilkins, Henry, 1767-1847. *The Family Adviser. . . .* 4th ed. New York, 1804.

3. Nolan, J. B. *Southeastern Pennsylvania* [a history of the six southeastern counties, including chapters on medicine]. Philadelphia, 1943. 3 v.

4. Poupart. *Traité des dartres. . . .* Paris, 1782.

Affiliation with the American Academy of Dermatology: On January 16, 1974, approximately 2,150 portrait photographs of dermatologists were presented to the Historical Collections by the Dome Laboratories. These have now been catalogued, with the assistance of a special grant from the donors. Also, through the agency of Walter B. Shelly, M.D., Fellow, a substantial collection of materials has been presented, relating to the history of the Department of Dermatology of the School of Medicine of the University of Pennsylvania.

It may be appropriate to mention here

that the second installment of the "Bibliography of Secondary Sources on the History of Dermatology," subheaded "Obituaries and Biographies in English from Journals before 1973," has been compiled under the joint editorship of Lawrence Charles Parish, M.D., Fellow, and Lisabeth M. Holloway, M.S. in L.S., and accepted for publication by the *Archives of Dermatology*. Verification and preparation of the manuscript for publication were undertaken by Susan Ashby, B.A., and Betsy Soifer, both students at Bryn Mawr College, employed as special assistants in the Historical Department, under a grant from the Herman and Ruth Goodman Foundation. For citation of the earlier installment, see the 1973 section of this report.

Cataloguing and Processing: Manuscript collections catalogued and added, or re-examined and recatalogued, 75; books accessioned and catalogued, 125; pamphlets accessioned and catalogued, 95; items recatalogued, added to existing titles, etc., 53; cards prepared and filed, 10,043; of which only 1,800 were for the Portrait Catalogue, in pursuance of a new policy limiting those recorded from current journals to obituary likenesses and those occupying a whole or half-page, except for Fellows' portraits, and other Pennsylvanians', which are fully recorded. Also included in the unusually high total of cards prepared are 2,100 for the Dome Collection (see above).

II. Publications:

1. Holloway, L. M. 1974. The Historical Collections of the Library of The College of Physicians of Philadelphia: A Survey of Their Extent in 1973 and a Chronicle of the Major Acquisitions. *Transactions & Studies of the College of Physicians of Philadelphia*, 4th series, 41:151-162.

2. Holloway, L. M. 1974. A Bibliographic Salute to W. B. McDaniel, 2d. *Ibid.*, pp. 171-175.

III. Service Activities

Circulation (i.e., items paged from locked areas and general stacks for use within the Reading Rooms only): 266 items.

Pictures copied (by professional photographer; assistance in locating the subject requested, taking the original to the photographer and fetching it back, and billing the user are duties performed by our staff): 77.

Reference questions recorded: 170.

Exhibits prepared: 13 subjects, including, in more or less chronological order, John Davidson Godman, 1794-1830; Puerperal Fever and the Contagionist Controversy; The Mary Scott Newbold Lectureship: Distinguished Former Lecturers; Some Early Approaches to the Immunology of Malignancy; The Medical Bartons; Benjamin Rush on Psychiatric Theory, and The Many Faces of Benjamin Rush, from the Bradley Collection; Samuel X Radbill, Pediatrician, Historian, Bibliophile; Some of Sir William Osler's Gifts to the College Library; Sex Education and Contraception: Some Examples through Time; and Gifts to the Library Historical Collections.

IV. Activities and Personnel

During the first six months of 1974, the Associate Curator prepared and delivered a brief speech in appreciation of Dr. Samuel X Radbill's devoted service to medical history; she also attended the annual meeting of the American Association for the History of Medicine, at Charleston, S.C., May 1-4, 1974. Since then she has served as a member of the Local Arrangements Committee for the 1975 meeting, which will be held in Philadelphia. She is also a consultant to The

Pennsylvania Hospital's Historic Library for its recataloguing project.

Mr. Alan S. Holtz, Jr., a recent graduate of the University of Pennsylvania, worked four months in the Historical Department, January 14 to May 7, assisting in reference work and exhibit preparation, as well as with cataloguing of the Dome portraits, and with manuscript recataloguing. His strong interest and good background in medicine and its history considerably eased this unusually busy period. Miss Patrica Connors, the Assistant for Paging and Book Preservation, gave diligent service. As noted above, the services of Miss Jean P. Carr, as Assistant to the Cataloguer, contribute very materially to the achievement of the Department, and to the satisfaction of its patrons.

Lisabeth M. Holloway
Associate Curator and Cataloguer
Historical Collections

REPORT OF THE ASSISTANT TO THE LIBRARIAN

The *S. Weir Mitchell Associates* increased by two endowments, raising the total to 172. A recruiting dinner, hosted by Dr. Jonathan Rhoads, was held at the Union League in December which yielded one of the endowments and elicited expressions of interest and future intent from two Fellows.

Visitors. Possibly because of world conditions, the flow of overseas visitors was slowed almost to a standstill, only two visiting us, one from Scotland (University of Edinburgh, School of Medicine Library) and one from England (Royal College of Physicians). Seven classes from area high schools, hospitals, the Free Library of Philadelphia, and Drexel University, Graduate School of Library Science, were given orientation tours and a lecture on the history and services of the College Library.

Fellows' service. Fellows' use of the special attention of the Fellows' Librarian increased considerably as the table below shows.

Fellows have doubled their use of their free quota of photocopy. One hundred forty-four Fellows requested some 532 articles or about $1,463.00 worth of photocopy. Fellows' normal use of the Reading Rooms is not recorded here, only their specific requests by mail or telephone for immediate attention. Fellows generally turn to the Fellows' Librarian only when the normal channels of service for one reason or another do not suffice.

Library photoduplication service. While the statistics for the library photodupli-

Fellows' Use of the Fellows' Librarian

	Jan.-Dec. 1973	Jan.-June 1974
Number of Fellows requesting special service	113	101
once only	71	73
2-5 times	38	23
6-10 times	1	3
over 10 times	2	2
Reference questions	40	36
Bibliographical searches	88	78
Referrals to MEDLARS/MEDLINE	9	10
Citation verification & identification requests (a single request may include many citations)	45	44
Direct loans by mail	22	14
Books specially ordered for Fellows	5	7
Miscellaneous inquiries	6	8

cation service are reported elsewhere, two new projects undertaken in the first six months of 1974 demand a word of explanation. First, the statistics:

	Jan.-Dec. 1973		Jan.-June 1974	
	Rec'd.	Filled	Rec'd	Filled
Photocopy requests	21,798	20,138	16,887	15,311

In the first six months, the photocopy service filled 70 percent of the twelve month total for 1973. This added activity (and income) was generated by the *American College of Physicians Medical Knowledge Self-Assessment Program* which brought in requests for photocopy from physicians from all over the country and some foreign countries, and by a special research project from one of the drug companies.

Duplicates. Our duplicate collection of journals served thirteen hospitals and two special libraries.

American Cyanamid Co. (Lederle Labs)
Cooper Hospital (Camden)
Crozer-Chester Medical Center
Episcopal Hospital
Esso Research and Engineering Corp.
Grand View Hospital (Sellersville)
Harrisburg Hospital
Mercy-Fitzgerald Hospital
Norristown State Hospital
Our Lady of Lourdes Hospital (Camden)
Penrose Cancer Hospital (Colorado Springs)
Reading Hospital
Scheie Eye Institute
Thomas Jefferson University Medical School
U. S. Naval Hospital (Philadelphia)

Although the flow of gift duplicates has almost ceased because of cut-backs in the pharmaceutical libraries which used to supply us with hundreds of duplicate issues, the above-listed institutions plus four individuals were served, and three shipments of duplicates were made to dealers in second-hand journals. Drastic curtailment of basement space available for duplicate storage has also restricted this service.

Paging staff. In spite of the numerous turnovers in the paging staff, the pages accomplished the pam-binding of 1,635 volumes in addition to their primary responsibility for paging and shelving. The pages contribute greatly to the library's reputation for fast, accurate and pleasant service, and thus enhance our public relations image in the most direct way. Prompt, efficient service is the best advertisement for a library. The turnover in the paging staff was heavy in the first six months of the year, but has stabilized somewhat lately.

During this past year, a student, Mrs. Charlotte Duvally, from the Graduate School of Library Service at Rutgers University underwent a "practicum" or internship here from February until the end of May, rotating through the various departments of the Library. The Library provided supervision and evaluation in conjunction with the counsellor at Rutgers. The student has since received her master's degree, and has joined the staff of the Medical Documentation Service.

All in all it has been a busy and productive eighteen months. The Fellows' Librarian is gratified that more Fellows are taking advantage of the phone and mail service, and are making greater direct use of the Library's vast resources.

Mrs. Davis served on the Executive Board of the Drexel University Alumni Association for the Graduate School of Library Science. She also continued on the Advisory Board for the Library Technicians' Program of the Community College of Philadelphia. She attended a meeting in Lancaster of the Interlibrary Delivery Service consortium, the Medical Library Association national meeting in Kansas City, as well as the meeting of the Philadelphia Regional Group.

Beatrice F. Davis
Assistant to the Librarian and Fellows' Librarian

MID-EASTERN REGIONAL MEDICAL LIBRARY SERVICE

July 1972—June 1974

The reporting period of the Regional Program has differed from the Library. The new Library report year noted at the beginning of this report permits the reports to terminate on the same date this year by covering two years of regional activity.

Objectives. The objectives of the Mid-Eastern Regional Medical Library continue to be:

1. Providing equal access to qualified users of biomedical information as rapidly and efficiently as possible.
2. Fostering the development and improvement of local health science library resources.
3. Acquiring and disseminating information on new and improved library techniques and tools.
4. Developing and implementing plans and programs to accomplish these objectives.

Short term goals which were identified during this period include: the development of a MERMLS Regional Plan in concert with the National Library of Medicine's interest in evolving regional planning models in some regions, implementation of sub-contracts for document delivery services with the Milton S. Hershey Medical Center and the Falk Library at the University of Pittsburgh, continued efforts to encourage and possibly assist in the implementation of basic unit consortia in those areas which have already demonstrated some degree of interest and desire, e.g., Camden, New Jersey, presentation of regional audiovisual workshops and seminars.

Significant events during this report period include: publication of MERMLS Restricted Journals List, Regional Reference Service Evaluation Study, May 1973, National Library of Medicine Evaluation Site Visit, subcontracts for document delivery effected with Hershey and Falk Libraries, first MERMLS Region NLM-funded hospital library consortium in greater Camden area, initial decentralization of MEDLINE under Phase II to hospitals, and activation of Regional Advisory Committee subcommittees and task forces.

Plans and programs formulated or initiated at the close of this reporting period include:

1. Conducting region-wide audiovisual workshops and seminars.
2. Planning for a "Trainers' Institute" to develop cadres of sub-regional hospital librarians capable of instructing in local workshops.
3. Developing and testing an experimental model linking the hospital library to the medical audit and/or the hospital educational program.
4. Continued effort to build local consortia, both of homogeneous hospital health science libraries and heterogeneous general, academic and special libraries.
5. Establishing closer links to other regional library networks (general and academic).
6. Continuation of re-organization of the Regional Advisory Committee and other committees.
7. Implementation of recommendations stemming from RML/NLM Working Committees subsequent to December 1974.
8. Distribution of the 1974 edition of the JIM (*Journals Indexed in Index Medicus*) List and implementation of new policy on referrals (open access within the Region by JIM List holders to proper location of serial needed).

Document delivery. The drastic reduction in requests returned and corresponding increases in requests referred between FY 1972 and FY 1973 resulted

from NLM-Network changes in reporting requirements.

	FY 1972	FY 1973
Requests returned	1,942	705
Requests referred	5,963	8,379

By eliminating the category "Returns" on the quarterly statistical report forms, the National Library of Medicine influenced MERMLS staff consciously to reduce returns to an absolute minimum. As an example, whereas in previous years, temporarily unfillable requests because of material at the binder, on loan, etc., had been returned, these were now referred.

An unusually extensive turn-over in non-professional staff during the last two quarters of FY 73 precipitated a sharp drop in the number of requests filled and cleared on the day of receipt. Despite the added burden of training new personnel, the filled and cleared rates for 1-4 days and 1-7 days respectively compare favorably with FY 72 data. MERMLS continued to achieve 100 percent of filled and cleared requests within the periods called for by the network.

Composite statistics (College of Physicians, Falk and Hershey) for the new year (July 1, 1973-June 30, 1974) show that the number of filled requests was 40,256, a bare fraction over FY 73's 40,020, all of which were filled by the College alone.

Although 3,000 more requests were received in FY 74, the fill rate declined to 78 percent from 82 percent. With the College receiving 84 percent of all requests, the rate was not adversely affected by the subcontractors. Instead, a larger percentage of requests received were referred, 19 percent versus 17 percent in FY 73. This increase was all contained within the Region since referrals to NLM actually declined.

The effect on document delivery of two mutually offsetting developments will be watched in the coming year. One is the cooperative sharing of resources by newly formed consortia which should reduce the number of ILL requests reaching MERMLS. The other is the forma-

MERMLS Production, 1972-74

Service	1973-74	1972-73
Document delivery		
Received	53,040	49,828
Referred	9,721	8,379
Returned	1,802	705
Rejected	1,261	724
Filled	40,265	40,020
Fill rate	77.7%	81.5%
Filled, % day 0	83.5	77.7
Cleared, % day 0	62.5	35.1
Reference		
Quick reference questions	5,526	6,801
Reference searches	2,382	2,199
Bibliographies	55	32
MEDLARS formulations	33	71
Training & consultation		
Workshops	4	5
Consultations & field trips	111	38
MEDLINE orientations	28	30

tion of new MEDLINE centers which should result in increased demands for document deliveries.

Reference and bibliographic services. Overall reference statistics for FY 73 show a decline over FY 72. One possible reason is the advent of MEDLINE terminals at all medical school libraries during FY 73. As these were emplaced, all affiliated hospitals were directed to their respective medical schools for MEDLINE searches rather than to MERMLS as in the past. Some of these hospital librarians undoubtedly began to shift non-MEDLINE reference queries to the same sources as their MEDLINE requests.

Subregionalization of document delivery also impacted on a reduced reference staff. Requests for verifications, not included in reference statistics, were sent to the College by both resource libraries. Also each relayed a number of standard reference queries originating in institutions in their respective subareas, since reference services were not decentralized under the NLM contract.

The number of reference searches increased to 2,382 in FY 74 from 2,199 in FY 73. Bibliographies prepared similarly increased to 55 from 32. Early indications for FY 75 point to an increase in reference demands on the MERML staff.

MEDLARS/MEDLINE. The first region-wide MEDLINE training program was offered in April, 1974 at The College of Physicians for new or auxiliary analysts at present centers by Ms. Cathy Orner. The 40-hour course was attended by six trainees from The College of Physicians (1), Hahnemann (2), Hershey (1), Jefferson (1), and the University of Pennsylvania (1).

As FY 74 was coming to a close, a number of large hospitals and hospital consortia made applications as MEDLINE centers under Phase II of the national plan for increasing access to the MEDLINE data base. A MERMLS MEDLINE Advisory Committee was formed in order to consider and evaluate new MEDLINE applications. The Regional MEDLINE analyst serves as staff to the Committee, with the MERMLS director as chairman.

Approved new centers include the Naval Regional Medical Center (Philadelphia), the VA Hospital (Wilkes-Barre), the VA Hospital (Wilmington), and the Geisinger Medical Center. A preliminary letter of interest was received from the Monmouth Medical Center, but arrived too late for action by the Committee in FY 74.

During FY 74 a total of 33 MEDLARS requests were processed. This represents a continuation of the precipitous drop in MEDLARS requests since MEDLINE has come into being and is more readily available. On the other hand 28 demonstrations and briefings were conducted over the past year on MEDLINE which were attended by 471 health practitioners and librarians. A total of 58 hours were devoted to this activity in FY 74.

Training & consultation. The training and consultation program underwent a shift during FY 73, as reflected in its activities. Grant consultation heavily weighted the consultation program this year. Upon the recommendation of the National Library of Medicine, all resource grant applicants now should confer with their respective RML's. Fourteen consultations were rendered to seven single institutions and to two groups of institutions for project grants and for one improvement grant.

MERMLS' answer to the Wilkes-Barre flood distress was first to follow NLM's gesture of concern in encouraging and assisting with project grant applications. In September, 1972, Jackie Rustigian of MERMLS accompanied Janet Welsh, Region III's program consultant from Extramural Programs (NLM), to Wilkes-Barre to discuss the cooperative planning and rebuilding of the area's hospital and

academic health science library collections. Funding for several project grants resulted from this effort, and follow-up contact has continually been made. In March, 1973, thirty-two cartons of duplicate journals, mainly donated by Thomas Jefferson University, Monmouth Medical Center (N. J.), and The College of Physicians, were transported to Wilkes-Barre for the benefit of four flood-damaged libraries. Limited extensions on document delivery quotas were granted to flood-stricken health science libraries in Wilkes-Barre, and two institutions accepted this additional service.

In addition, ten other consultations were given. Telephone advisory services were given at a rate of about three per week. Where advice, be it technical or philosophical, can be given without necessitating a visit, the telephone has been used.

Two training programs on Nursing and Allied Health Resources were held in the fall of 1972 in Reading, Pa. and Trenton, N.J. Total attendance was 56, including administration, personnel in training and continuing education, in addition to librarians. A twenty-page bibliography was generated for this program. A fall audio-visual program was given by Margaret L. Brooks of the National Medical Audiovisual Center, which MERMLS and the University of Pennsylvania School of Medicine co-sponsored. Seventy health science librarians/educators attended, mainly from the eastern and central portions of Region III. Several a-v demonstrations followed at the University of Pennsylvania Medical School Library. An early spring 1973 workshop on Organization of Library Materials (acquisitions, cataloging, serials maintenance) drew thirty-five attendees to The College of Physicians.

Midway through FY 74 the training and consultation office changed hands. Jackie Rustigian resigned to assume a similar position with the Mid-Atlantic RML based in the National Library of Medicine. Her responsibilites were partially assumed by the director and partially assigned to Kathleen Vick, a newly graduated medical librarian.

Prior to her departure, Jackie Rustigian conducted four two-day workshops in reference and cataloging. One was offered in Philadelphia and the other three in western Pennsylvania. A total of 64 persons attended the reference workshops, and 54 attended those on cataloging.

A total of 96 consultation site visits were made in two years as follows:

48 Eastern Pennsylvania (27 in metropolitan Philadelphia)
7 Central Pennsylvania
14 Western Pennsylvania
25 Southern New Jersey
2 Delaware

Consultation activities were also conducted through correspondence and by telephone. Communication with institutions located outside of metropolitan Philadelphia were particularly strengthened during FY 74.

Regional Advisory Committee. One of the short term goals noted above was to reconstitute the Regional Advisory Committee. As a first step in this direction at the November, 1973 meeting, the RAC endorsed the formation of a number of subcommittees and task forces, all of which include non-RAC members.

The MERMLS Audiovisual Task Force, chaired by Jerome Rauch of the University of Pennsylvania, developed recommendations for regional standardization of audiovisual software formats. These were presented to the RAC at its April, 1974 meeting and unanimously endorsed. As publicized in the *MERMLS News* (May, 1974), these formats are ¾" Umatic video-cassette and 35mm slides with or without audiocassettes. The Task Force also developed a standard reporting form for presently held software. Ini-

tial responses were fed into the University of Pennsylvania computer and a pilot issue of a planned quarterly publication on regional audiovisual software holdings was scheduled for publication in the fall of 1974 with printing and some distribution costs assumed by the Pennsylvania Medical Society.

The MERMLS Subcommittee on Education and Communication, consists of practicing hospital librarians, except for Dr. Barbara Flood, chairman, of Drexel University School of Library Science. Their charge is to advise MERMLS on means to improve communication with and provide educational opportunities for hospital librarians. As a result of their recommendations, the *MERMLS News* is now published monthly, and its format and content have been changed.

The MERMLS Subcommittee on Hospital Library Development, composed of hospital administrators, physicians, and health science librarians is chaired by Betsey Schreder of the Wilkes-Barre VA Hospital. Its charge is to recommend ways and means for improving capabilities of the local health science library to fill its role as the primary health information resource in its community. Early meetings explored regional hospital library standards as a possibility, but after a meeting with a JCAH representative, this idea was dropped. Currently the Subcommittee is investigating means by which the medical audit and the hospital library can be correlated to provide an experimental design which could be tested regionally.

Regional personnel. Regional photocopy. Joan McKenzie, head, received her master's degree in library science in June, 1973 from Drexel University and transferred to the Cataloging Department. Her replacement is Marianne Fernandez-Caballero. Janice Burt transferred in September, 1973 to the position of Evaluation Assistant for the Regional Medical Library Program. Her replacement was Ken Garland. LaVerne Pittman resigned in September, 1973 to accept a position elsewhere. Her replacement is Karen Adkinson. Carol Sapp resigned in April, 1973 and was replaced by Karen Imber who resigned in May, 1973 and was replaced by Shari Salis. Shari Salis resigned in August, 1973 to continue her study of voice and her replacement is Diane McManus.

Regional Reference. Teal Zalinski Davidson, upon her marriage in November, 1973, went from full-time to part-time service in Periodicals but leaving Reference. Christine Balonis, who had been full-time, became part-time assuming Mrs. Davidson's former position. A new reference librarian, Nancy Karl, joined the staff in September, 1973.

Readers' services. In August, 1973, Rita Thomas returned to school to work toward a law degree. Another staff member, Ellen Frost, took her place. Carol Brown transferred in May, 1973 to the comptroller's office and was replaced by Karen Adelman who had worked the preceding summer in the Historical Department. Karen Adelman resigned in October, 1973 to do volunteer work in Israel. Her replacement is Susan Ashby who had worked the summer of 1972 in the Historical Department.

MEDLINE. Catherine Orner resigned as senior MEDLARS analyst to devote her full attention to homemaking. In 1974 she returned to the College to assist the Continuing Education for Primary Care Physicians Program. Her tragic death on January 6, 1975, deprived the College and her many friends elsewhere of a brillant lady who had a major role in the development of MEDLARS and its terminology. Her ability as a teacher and consultant were widely recognized.

Regional Office. June Fulton's outstanding service was recognized in October, 1974 by her promotion to the assistant directorship of the Regional Service.

Jackie Rustigian resigned in January, 1974 to accept a position with the National Library of Medicine. She was replaced by Kathleen Vick with the title, assistant to the director. Patricia Fox resigned in August, 1973 to travel.

MERMLS directorship. In September 1973, the vacancy in the directorship was filled by the appointment of John A. Timour. He brought to the position experience as library services director of the Connecticut Regional Medical Program. He served as training officer and MEDLARS liaison officer at the National Library of Medicine. His firm and creative leadership restored the momentum which had been lost since the resignation of Carol C. Spencer in September, 1972. [This paragraph was written by the Librarian.]

John A. Timour, *Director*
June Fulton, *Assistant Director*
Eastern Regional Medical Library Program

THE CATALOG DIVISION PROJECT GRANT

By the end of 1973 the catalog project was nearing completion. The initial separation of cards to form a *Historical-Biographical Unit* and a *1950- Unit* was accomplished in the spring, just a year after the project began. The second and final project year has been devoted to further division of the *1950-* catalog into a name section and a subject section and to the revision of subject headings to conform to MeSH, which is the authority list used by the National Library of Medicine.

Our project cataloger, Ellen Batty, was able to complete the revision of subject headings on all cards by December, before she assumed her new duties as head of the Periodicals Department. The task of withdrawing cards, changing tracings, making guide cards and refiling was a very time consuming one, but our project assistant, Judy Barnes worked so steadily and efficiently that the project was completed by early May, 1974. The Library was fortunate in having two such able and dedicated workers to accomplish the project.

Having three catalog units instead of one may at first be confusing to users who were well accustomed to the old dictionary catalog. To assist them in adjusting to the change, we have prepared a "Guide to the Use of the Catalog" for distribution at the circulation desk. This sheet defines the types of materials represented in both the *Historical-Biographical* and the *1950-* units and also outlines the easiest way to use the subject catalog. To help in identifying the three units we are using various colors for labels on the catalog drawers: green ones for the *Historical-Biographical Unit;* red for the subject section, and white for the name section of the *1950-* catalog.

The catalog division was made possible by a project grant from the National Institutes of Health, with the object of making the catalog an easier tool to use for both our staff and patrons, and we believe this goal has been realized. A paper which describes the procedures used in carrying out this project has been accepted for publication by the *Bulletin of the Medical Library Association.*

Sarah Caspari
Head, Processing Department

MEDICAL DOCUMENTATION SERVICE

Publishing activity. The Drug Information Association Journal continues as a product of the Medical Documentation Service photocomposition services. The director of MDS became the editor of the *Journal* this year, and with the valuable assistance of Dr. Harriet Rockwell as associate editor and K. Bernice Odom as editorial assistant, the *Journal* has become a permanent publication of the department. Since a photocomposition service in combination with the varied

literature services provided by MDS is relatively difficult to obtain, the department provides its clients with this capability afforded by the intellectual effort of the staff.

The publication of *Cystic Fibrosis* (an abstract journal) continues under the auspices of the Cystic Fibrosis Research Foundation, with the Medical Documentation Service providing article selection, abstracting, indexing and photocomposition. Added to the journal activity this year, the department has developed an index covering 75 years of literature related to Cystic Fibrosis, under the terms of a grant, co-sponsored by the National Institute of Arthritis and Metabolic Diseases, National Institutes of Health, and the National Cystic Fibrosis Research Foundation. In addition to the intellectual effort given to this project, the department's rapidly developing expertise in the computer-generated indexes and other input data, was applied to the preparation of the final camera-ready copy programmed to the computer.

The *Proceedings of the 6th Annual National Information Retrieval Colloquium*, edited by Louise Schultz (BIOSIS) and the *Proceedings of the 7th Annual National Information Retrieval Colloquium*, "The Social Impact of Information Retrieval," edited by Alberta D. Berton (MDS), are still available from the department at a cost of $15.00.

As business manager and treasurer of the *COPNIP List* (Committee on Pharmacomedical Nonserial Industrial Publications of the Pharmaceutical Division of the Special Libraries Association), the director forwards a copy of this rather unusual publication to the College Library for its collection.

Photocomposition services. With the advent in the department of the new Xerox 7700 duplicating equipment, including all of its "bells and whistles" (variable paper weight feed, computer fanfold feed, five reduction ratios, and sorter bins), the photocomposition services of the department have been expanded to include printing of many of the meeting notices, brochures and other promotional material representing College activities. The staff member responsible for this reproduction technique is Kenneth Garland. Other Sections of the College as well as clients have taken advantage of the reduced cost this capability provides. The MDS staff member who so capably provides the computer typesetting and composition is Patricia Gardner.

SDI Service. (The Selective Dissemination of Information Service). As a major function of the department, this service continually expands to include new clients and new subject areas. It serves a strongly pharmaceutical-oriented interest as well as a concern for environmental health and drug abuse. Computer programming has been revised to cope with the new elements and requirements this service has created. All periodicals are scanned by a scientifically and linguistically skilled staff, namely Irina Rubin, Dr. Daniel Turner and Lyuba Schwartsman, with the coordinating skills and assistance of Dr. Harriet Rockwell. Selected articles are recorded by random input to magnetic tape by Rosalyn Long, backed up by Patricia Gardner. K. Bernice Odom serves, with unequalled skill and expertise as a bibliographer, to coordinate the SDI and Reference Services. Charlotte Duvally edits the tapes and coordinates the flow of journals within the Library and the department.

Document delivery service. As an integral part of the SDI service, document delivery has grown at a phenomenal rate. MDS now provides a complete literature service of selective dissemination of information to some 25 regular clients with over 100 profiles. Following selection by the professional staff, the processing of the selected articles travels down the line to the indexer, the com-

puter operater for input of the data into the system, to the document delivery section, which then provides the copy of the article to the client. Telephone reference service which provides the requester with document delivery is an added feature of the rapidly expanding document delivery and reference section of MDS. Staff members contributing to this effort are Kenneth Garland, Beverly Crane, Dr. Carmen Candelori, and Robin Jacobsen as well as its coordinator, K. Bernice Odom.

Retrospective search services. Food and Drug Administration investigation of component parts of pharmaceuticals, both ethical and OTC, has continued to create the need for comprehensive literature search services and data analysis of the articles retrieved by the searches. Requests for assistance in this area have increased over the past year or two, and give evidence of the benefits of this very large resource library and the service MDS provides, not only to our own community but the rest of the world. Responsibility for the performance of these tasks has been shared by K. Bernice Odom and Dr. Carmen Candelori, supported by Charlotte Duvally in crisis periods.

Abstracting Services. Our rewarding and gratifying relationship with BIOSIS (*Biological Abstracts*) continues into its third year. The ongoing contract to provide this organization with thousands of foreign language abstracts annually for inclusion in *Biological Abstracts* also demonstrates the wide range of facilities and capabilities MDS can provide to the user market. The developing interaction with BIOSIS and many of its activities is one of the department's great gains. Among the contributors to this effort within the department are Dr. Daniel Turner and John Slep both of whom have multilingual skills.

Data extraction, analysis, and indexing. An important added function to the SDI service is indexing, keywording and analyzing the data contained in the many articles which fit the client profile. Added to the staff to provide this very scientific aspect of our activities were Judith Baker and Elaine Curcio, aided by Dr. Carmen Candelori, Irina Rubin, Dr. Daniel Turner, Lyuba Schwartsman, Dr. Harriet Rockwell and K. Bernice Odom, who lends her expertise to the establishment and standardization of the bibliographic data.

Translations. This function has also expanded, for in addition to the translating/abstracting function of the BIOSIS contract, MDS has in the past year taken on the full translating volume of one of its clients.

Telecopier Service. This direct image transmittal of documents and messages over telephone lines adds to the many conveniences MDS clients have learned to enjoy. It aids in the rapid delivery of any communication, avoiding delays in the mail.

Other efforts to meet the needs of our users have been directed toward medical writing and editing; the greatest responsibility for this is in the hands of Dr. Harriet Rockwell, who acts as assistant to the director in scientific areas. as K. Bernice Odom does in general routines.

New activity. The two greatest achievements this year in the expansion of activity by the department are as follows:

Beginning with the fall issues of 1974, arrangements have been made with the Texas Pharmacal Company to provide a six-page spread in the *International Journal of Dermatology*, containing an Alerting Service for literature of interest to the dermatologist and other practicing physicians. To accomplish this, MDS added a classification to fit the objective of this publication to its SDI profiles. Under the name of the Medical Documentation Service's Alerting Service, this unique selection of the dermatological

literature has been made available to the practicing physician and scientist. A Document Delivery Service will be underwritten by the Texas Pharmacal Company.

MDS was named a Clearinghouse for Informatics, Inc., for the EXCERPTA MEDICA ON-LINE DATA BASE, beginning by the end of the year. Informatics has the exclusive license on the North American continent to market access to the data base with worldwide coverage of biomedical literature on basic medical sciences and major clinical specialties. The availability of this huge segment of medical literature will be made possible through the Medical Documentation Service under terms of an agreement with Informatics, Inc. It is hoped that this added function will augment the overall services provided by MDS.

Professional activities of the director, which enhance the availability of MDS services, include the following: editor, *Drug Information Association Journal;* business manager and treasurer, *COPNIP List;* treasurer, Documentation Abstracts, Inc.; Drug Information Association; Board of Directors and Finance Committee, NFAIS (National Federation Abstracting and Indexing Services); Marketing Committee, World Data Base Ad-

Three and One Half Year Comparative Statistics of MDS Activity

Service Rendered	Jan. 1, 1971 to Dec. 31, 1971	Jan. 1, 1972 to Dec. 31, 1972	Jan. 1, 1973 to Dec. 31, 1973	Jan. 1, 1974 to June 30, 1974 (6 months only)
Scanning references reported (SDI)	15,219	16,261	15,426	10,723*
No. of SDI Profiles	90	80	54	104
No. of clients served in SDI	23	19	15	21
Abstracts				
English	2,353	246	200	250
Foreign	1,412	7,520	7,750	2,644
Total Abstracts	3,765	7,766	7,950	3,194
Retrospective literature searches	125	145	115	116
Interlibrary loan	—	216	201	113
Telephone reference service Recorded by number of requests)	1,700	1,876	2,001	1,358
Telecopier service (no. of requests)		88	77	46
Indexing	2	3	12	486
Data analysis	2	506	4	486
Kewording	—	—	—	2,211
Editing and rewriting	2	12	6	9
Photocomposition	3	5	6	22
Translations	80	160	143	83
Promotional printing (brochures, meeting notices, programs, etc.)	—	—	4	23
Document delivery requests	4,534	17,329	22,235	14,006
Publications	1	2	2	4
Data processing	5	6	13	16
Photocopy exposures				176,552

* Actual figures of SDI references for the year 1974 totaled 21,130, almost doubling that of the previous year.

visory Committee; invited panel chairman to NFAIS 1975 Annual Conference, and special advisor to the Drug Information Association 1975 Conference.

A rather large turnover in the staff took place during this period, and it was with regret that the department lost the services of Elizabeth Wright, Lee Schwartz, Linda Frantz, Fritz Danga, Ellen Creskoff and Dena Sher. Interim secretaries during this period were Bernadette Keyser, Grace Rupertus, and Nina Bell. A new secretary, Ellen Grimison, will be joining the staff.

Alberta D. Berton, *Director*
Medical Documentation Service

INSTITUTIONAL REGISTRANTS

The College Library acknowledges the support received from the registration fees of the following institutions which share the operational costs of the College Library:

NON-PROFIT INSTITUTIONS

Atlantic City Hospital
Bryn Mawr Hospital Medical Staff
Chestnut Hill Hospital Medical Staff
Cooper Hospital Medical Staff
Alfred I. Du Pont Institute of the Nemours Foundation
Albert Einstein Medical Center (Medical Staff)
Franklin Institute
Germantown Dispensary & Hospital
Hahnemann Medical College
Harrisburg Hospital
Hospital of the University of Penna. (HUP)
Institute for Cancer Research
Institute for Medical Research
Institute of Pennsylvania Hospital
Lankenau Hospital
Medical College of Pennsylvania
Moss Rehabilitation Hospital
Mt. Sinai Medical Center (Miami Beach)
National Academy of Science Library (Wash., D. C.)
Pennsylvania College of Podiatric Medicine
Philadelphia College of Osteopathic Medicine
Philadelphia General Hospital
Sacred Heart Hospital (Allentown)
Temple University Medical School
Thomas Jefferson University Medical School
U. S. Naval Hospital (Phila.)
University of Pennsylvania Medical Libraries
West Jersey Hospital
Wilmington Medical Center (Delaware)
Wistar Institute Library

CORPORATE INSTITUTIONS

Air Products & Chemicals Inc. (Allentown)
Air Shields, Inc. (Hatboro)
American Cyanamid Co. (Lederle Labs. Pearl River, N. Y.)
Avellino, Bernard J. (Atty)
Beasley, James E. (Atty)
Becton, Dickinson & Co. Corporate
Bell Telephone Co. of Penna.
Bernstein, Bernstein, & Harrison (Atty)
Biological Abstracts
Bolger & Picker (Atty)
Brown, Connery, Kulp, Purnell & Greene
Campbell Institute for Food Research
Cappel Laboratories, Inc.
Carter-Wallace Laboratories
Chrono-Log Corporation
Ciba-Geigy Corporation
Cohen, Shapiro, Polisher, Shiekman & Cohen (Atty)
Cooper Laboratories, Inc.
Corning Glass Works
Council for Tobacco Research
F. A. Davis Company
Dechert, Price & Rhoads (Atty)
Drinker, Biddle & Reath (Atty)
Duane, Morris & Heckscher (Atty)
E. I. du Pont de Nemours Co. (Haskell Lab)
E. I. du Pont de Nemours Co. (Lavoisier Lab)
E. I. du Pont de Nemours Co. (Stine Lab)
E. I. du Pont de Nemours Co. (Technical Library)
ESB Incorporated
Elwood A. Levy Associates (Atty)
Emergency Care Research Institute
Ettinger, Poserina, Silverman, Dubin, Anapol & Sagot (Atty)
Excerpta Medica
Extracorporeal Medical Specialties, Inc.
Fein, Criden, Johanson, Dolan & Morrissey (Atty)
Feldman & Feldman (Atty)
Frank and Margolis (Atty)
Freedman, Borowsky & Lorry (Atty)
Galfand, Berger, Senesky, Lurie & March (Atty)
General Electric Company
General Technical Services, Inc.
Germantown Laboratories, Inc.

Goldstein, Evelyn
Haines, Barton A. (Atty)
Hal Lewis Design, Inc.
Haws & Burke (Atty)
Hercules Incorporated
Hoechst Pharmaceutical Company
Hoffman LaRoche, Inc. (Cranbury, N. J.)
Hoffman LaRoche, Inc. (Nutley, N. J.)
ICI United States, Inc.
Institute for Scientific Information
Intermedica Communications, Inc.
International Pharmaceutical Corp.
Johnson & Johnson
Kisselman, Deighan, Montano & Summers
Kolsby & Wolf (Atty)
Kremer, Krimsky & Luterman (Atty)
LaBrum & Doak
Lea, Inc.
Lea & Febiger
Lewis & Gilman, Inc.
J. B. Lippincott Co.
Arthur D. Little, Inc.
S. Gerald Litvin (Atty)
Joseph Lurie (Atty)
Mac Andrews & Forbes Co.
Manchel, Lundy & Lessin (Atty)
Mann & Ungar (Atty)
Marshall, Dennehey & Warner (Atty)
McNeil Laboratories, Inc.
Meade Johnson Research Center
Mediscope, Inc.
Meditel, Inc.
Mel Richman, Inc.
Mendel & Schwartz (Atty)
Merck Frosst Laboratories (Canada)
Merck Sharp & Dohme (Rahway)
Merck Sharp & Dohme (West Point)
Merrell-National Laboratories
Monheit, Rosenfield & Mamuth (Atty)
Morgan, Lewis & Bockius (Atty)
Narco Scientific Industries, Inc.
Narco Avionics
Norwich Pharmacal Company
Obermayer, Rebmann, Maxwell & Hippel (Atty)
OEM Medical Inc.
Ortho Research Foundation
Pechner, Sacks, Dorfman, Rosen & Richardson
Pennwalt Corporation
Pepper, Hamilton & Scheetz (Atty)
Perskie & Callinan (Atty)
Philadelphia Electric Company
Pitman-Moore Inc.
Proctor & Gamble Co. (4 branches)
RCA/Government Communications System Library
Raynes, McCarty & Binder (Atty)
R. J. Reynolds Tobacco Co.
Richter, Syken, Ross & Levant (Atty)
Robert Wood Johnson Foundation
Rodale Press, Inc.
Rohm & Haas Co. (2 branches)
William H. Rorer Inc.
A. M. Rywlin, M.D. & Associates (Miami Beach)
Sandoz-Wander, Inc.
W. B. Saunders Co.
Schering Corporation
Schnader, Harrison, Segal & Lewis (Atty)
Scott Paper Company
Shein & Brookman (Atty)
Sherr, Silverman, Warden, Moses & Marcus (Atty)
Morris M. Shuster (Atty)
Smith, Aker, Grossman & Hollinger (Atty)
Smith Kline & French Laboratories
Squibb Institute for Medical Research
Paula Stone
Stradley, Ronon, Stevens & Young (Atty)
Travenol Laboratories, Inc.
USV Pharmaceutical Corp.
Warner-Lambert Pharmaceutical Company
Weinstein & Factor (Atty)
White & Williams (Atty)
Worthington Biochemical Corporation
Wyeth Laboratories, Inc.

STATISTICAL SUMMARY
Inventory

Assessioned items:[1]	*1973-June 1974*	*1972*
Incunabula[2]	421	421
Manuscripts and typescripts	1,385	1,353
General	268,628	262,720
Pamphlets	11,204	10,991
	281,638[3]	275,485[3]

Unaccessioned items:[1]		
Reports	28,822	28,822
Theses	65,018	64,494
Pamphlets, reprints, microfiche	228,946	228,918
	322,786	322,234

Accessioned acquisitions:

1973-June 1974: 7,978 volumes (3,472 by purchase; 2,121 by gift; 431 by exchange) (books, 2,327; periodical volumes, 3,593, pamphlets, 213)

1972: 3,416 volumes (1,880 by purchase; 1,271 by gift; 265 by exchange) (books, 1,393; periodical volumes, 1,877; pamphlets, 146)

Unaccessioned acquisitions:

1973-June 1974: 902 items (theses, 854, miscellaneous, 48)

1972: 781 items (theses, 584; microfiche, 34; micellaneous, 163)

CURRENTLY RECEIVED SERIALS

	Subscription	*Gift*	*Exchange*	*Total*
U.S.A.	630	337	60	1,027
Western Europe	901	69	107	1,077
Eastern Europe	136	32	63	231
United Kingdom & Eire	198	20	21	239
Asia (including Japan)	108	59	83	250
Latin America & West Indies	22	25	34	81
Canada	22	9	8	39
Pacific (Australasia)	10	10	10	30
Africa	2	9	14	25
Grand Total 1973 (Dec. 31)	2,029	570	400	2,999[4]
Grand Total 1972 (Dec. 31)	2,132	660	445	3,237

[1] Accessioned items in this library comprise the total number of bound volumes and such unbound pamphlets as have been cataloged as separate bibliographical units regardless of their size.

There remain many thousands of unaccessioned pamphlets awaiting accessioning and cataloging. A true quantitative and qualitative picture of the library's holdings cannot be presented until this wealth of neglected material has been processed and duly registered in our 'accessioned' count.

[2] The Library owns 423 incunabula, but there are two instances of two bound together, reducing the number of accessioned volumes.

[3] Included in these figures are the following collections which are on permanent deposit in the Library: Gross Library, 3,976 accessioned items; Parry Library of the Obstetrical Society of Philadelphia, 217; Mütter Museum, 200. Mütter Museum books may not be removed from the College building.

[4] Titles are only included in this count if issues were received during 1972 or 1973.

New Titles: A total of 49 new serial titles was added from November 1, 1972 to December 31, 1973. (62:1972) A total of 38 new titles was added from January 1 to June 30, 1974.

25,105 separate issues were received, checked in and shelved in 1973. (23,829:1972) 12,279 separate issues were received, checked in and shelved from January 1 to June 30, 1974.

Binding. During 1973, 1,188 volumes were commercially bound. (1972:624)
During 1973, 849 volumes were pamphlet bound in the library (1972:801)
January-June 1974, 629 volumes were commercially bound (1973:1188)
January-June 1974, 338 volumes were pamphlet bound in the library (1973:849)

READERS' USE OF THE LIBRARY

Library hours: During the academic year the Library was open from 9:00 A.M. to 5:00 P.M. Monday through Saturday. From June 1 until the first Saturday after Labor Day, the Library was open from 9:00 A.M. to 5:00 P.M. Monday through Friday. The following legal holidays were observed: Thanksgiving, Christmas, New Year's, Washington's Birthday, Memorial, Independence, and Labor days.

	Jan.-June 1974	*1973*	*1972*
Visitors			
Reading Room	3,158	6,318	4,952
Periodicals Room	700	1,443	1,412
TOTALS	3,858	7,761	6,364
Intramural circulation[5,6]	11,977	21,569	18,947
Extramural circulation[6]			
ORIGINAL LOANS			
Regional	997	2,238	7,636
Registered Institutions	2,681	5,318	—[7]
Registered Individuals	1,128	2,829	3,444
TOTALS	4,805	10,385	11,080
PHOTOCOPIES (ARTICLES)			
Regional	16,317	32,372	33,619
Library	7,704	17,298	17,395
TOTALS	24,021	49,670	51,014

DONATIONS

The number of donors giving to the current collection during the eighteen-month period was 86 (1972:62). The Library is indebted for large gifts of books, pamphlets and unbound periodicals to the following donors: American College of Physicians, Susan Doerr Brodsky Memorial Fund, Ciba Pharmaceutical Company, Myer H. Goldman Foundation, Hahnemann Medical College Library, Florence A. Moore Library of the Medical College of Pennsylvania, Dr. W. B. Shelley, Dr. Julian A. Sterling, Temple University Health Sciences Library and Scott Memorial Library of Thomas Jefferson University.

Various publishing houses, among the group of corporate donors, have presented volumes as

[5] The number of volumes "consulted in the library" includes only those supplied on demand. Readers have access to the bound volumes of periodicals and reference works kept on the shelves in the Reading Room. The Fellows, and occasionally others, by special permission, have access to the book stacks. There are, therefore, many volumes consulted of which no accurate record can be kept.

[6] Circulation figures are no longer recorded to differentiate between use of books and journals. Through the years the ratio of journal to book circulation has been approximately 3 to 1.

[7] In 1972, Regional and non-Regional institutional use were not reported separately.

follows: F. A. Davis Company, 63; Lea & Febiger, 20; J. B. Lippincott Co., 56; W. B. Saunders Co., 177.

Other individual donors were as follows: Dr. Garrott Allen, Dr. and Mrs. Albert A. Arenowitz, Dr. Henry W. Baird, Mr. Ward Bentley, Edmund and Marianne Bergler Psychiatric Foundation, Drs. Frank P. Brooks, Thomas Butterworth, Sidney M. Cantor, Mr. Eugene Czeh, Dr. Thomas M. Durant, Franklin Institute Research Laboratories, Dr. Joseph T. Freeman, Mrs. Ruth Galon, Drs. Harry G. Gianakon, John P. Hubbard, Mrs. John Jay Ide, Mr. Charles Ingersoll, Mr. Henry C. Longnecker, Dr. John L. McClenahan, Mr. Ronald W. McNeur, Drs. R. H. Meade, Ashley Montagu, Craig W. Muckle, Dr. and Mrs. Stuart Mudd, Dr. Leslie Nicholas, Miss Rose Orente, Dr. Lawrence C. Parish, Ms. Jacqueline Picciano, Mr. H. Mefford Runyon, Dr. David D. Rutstein, Mr. Carl Stenzler, Drs. Katherine R. Sturgis, E. C. Syrovatka, Mr. George K. Tokuhata, Drs. L. Tuft, Tevjik E. User, Irving J. Wolman and Mr. Carter Zeleznik.

Theses and dissertations in the number of 761 have been received on exchange from the following European schools of medicine: Universities of Copenhagen, Erlangen, Geneva, Karolinska Institutet, Universities of Lausanne, Leiden, Leige, Louvain, Lund and Utrecht.

The *Transactions & Studies* was sent, either in exchange or as gift, to 454 organizations and institutions.

THE STAFF

Librarian
Elliott H. Morse

Assistant to the Librarian
&
Fellows' Librarian

Mrs. Beatrice F. Davis

Library Secretary

Mildred C. Gray

Processing Dept.

Mrs. Sarah Caspari, Head

Cataloger
Joan R. McKenzie

Acquisitions Assistant

Josefa Sereda

Xerox Operator

Deidre Harper
Bonnie Convery*

Mail Clerk

Frank Swift

Circulation Dept.

Susan Ashby
Elizabeth Colabrese*
Ellen Frost
Ann Vosburgh*

Paging Staff

Linda Daniels
Bernadette Fortino
Nancy Gaughan
Brigette Griesbach*
David Tester
Doris Werner

Laurie Flint*

Serials Dept.

Mrs. Ellen Batty, Head

Serials Librarian
Mrs. Matilde Davidson,*

Serials Assistants

E. Naomi Frazer
Ms. Catherine Ledwell
Diana Dent*

Library's Historical Department

Mrs. Lisabeth M. Holloway, Curator

Regional Medical Library Program

John A. Timour, Director

Jean P. Carr, Assistant to the Cataloger
Patricia Connors, Assistant for Book Preservation

Medical Documentation Service

Alberta B. Berton, Director
Dr. Harriet Rockwell, Coordinator Literature Services
K. Bernice Odom, Coordinator SDI Service & Acting Coordinator Reference Services
Judith Baker, Biomedical Literature Scientist
Elaine Curcio, Biomedical Literature Scientist
Charlotte Duvally, Biomedical Literature Scientist
Irina Rubin, Biomedical Literature Scientist
Lyuba Schwartsman, Biomedical Literature Scientist
Dr. Daniel Turner, Biomedical Literature Scientist
Ellen Grimison, Secretary
Robin Jacobsen, Clerical Assistant
Kenneth Garland, References Services
Beverly Crane, References Services
Dr. Carmen Candelori, References Services
Patricia Gardner, Data Processing
Rosalyn Long, Data Processing

Mrs. June Fulton, Assistant Director
*Mrs. Christine Balonis, Reference Librarian
Mrs. Nancy Karl, Reference Librarian
Andrea Jancsura, Regional Secretary
Mrs. Janice Burt, Evaluation Ass't.
Kathleen Vick, Ass't. to the Director
*Mrs. Deborah Faulkner, Audiovisual Ass't.

Regional Photocopy & TWX Section

Mrs. Marianne Fernandez-Caballero, Head
Karen Adkinson, Assistant
Richard Mascitti, Assistant
Donna Wynne, Assistant

On-Line Bibliographic Search Services Center

Mrs. Ruthanne Henner, Analyst
Donna Cullen, Assistant

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* Part-time staff.
Library Staff list as of February 3, 1975.

List of College Lectures, 1973–74

3 January 1973

RICHETTE, LISA AVERSA. Who Catches the Throwaway Child? (Mary Scott Newbold Lecture CIII; *Transactions & Studies*, April, 1973)

7 February 1973

EBERT, ROBERT H. The Future of Medicine in a Troubled Society.

7 March 1973

LEE, JAMES B. Homeostasis and the Prostaglandins. (Mary Scott Newbold Lecture CIV; *Transactions & Studies*, July, 1973)

4 April 1973

CALHOUN, JOHN B. From Mice to Men. (Ralph Pemberton Lecture I; *Transactions & Studies*, October 1973)

9 May 1973

LARAGH, JOHN H. The Renin Axis in Causation, Prognosis and Treatment of Hypertensive Disease. (Nathan Lewis Hatfield Lecture L; *Transactions & Studies*, October, 1973)

6 June 1973

BLEULER, MANFRED. Today's Concept of Schizophrenia. (Susan Doerr Brodsky Lecture I; *Transactions & Studies*, October 1973)

3 October 1973

CRILE, GEORGE. The Breast Cancer Controversy. (Catherine Macfarlane Lecture on Cancer Control II; *Transactions & Studies*, April 1974)

7 November 1973

KEENEY, ARTHUR H. The Automobile as a Weapon. (S. Weir Mitchell Oration XX)

5 December 1973

NEWMAN, OSCAR. Effects of Environmental Design on Attitudes and Behavior of Residents. (James M. Anders Lecture LI; *Transactions & Studies*, April, 1974)

9 January 1974

RUTSTEIN, DAVID D. Quality Control, Yes; PSRO's No! (Mary Scott Newbold Lecture CV.)

6 February 1974

HERSH, EVAN M. Immunological Aspects of Malignancy. (Alvarenga Lecture XXXII.)

6 March 1974

GOTTLIEB, JACQUES S. Recent Biochemical Studies of Schizophrenia. (Susan Doerr Brodsky Lecture II.)

3 April 1974

BOGGS, THOMAS, R., JR., AND LANGFITT, THOMAS W. The Post-Intensive Care Problems. (Robert Abbé Sponsored Symposium.)

1 May 1974

SEGAL, SHELDON J. Contraceptive Research: A Male Chauvinist Plot? (Henry W. Stelwagon Lecture.)

Transactions of the Sections, 1973–74

SECTION ON INSURANCE MEDICINE

11 April 1973

IMPROVING OUR CRIMINAL JUSTICE SYSTEM. Arlen Spector.

17 October 1973

COMMERCIAL OPPORTUNITIES IN UNITED STATES HEALTH CARE IN THE 1970s. Richard L. Hughes.

15 May 1974

THE INSURANCE INDUSTRY and REHABILITATION. George T. Welch.

SECTION ON OPHTHALMOLOGY

18 January 1973

MICROSURGICAL TECHNIQUES IN OPHTHALMIC SURGERY. Richard C. Troutman, M.D.*, Peter R. Laibson, M.D., Donelson R. Manley, M.D., Moderator.

15 February 1973

AUTOMATED REFRACTION. Aran Safir, M.D.*, Owen Belmont, M.D., Moderator.

15 March 1973

TRANSIENT NEONATAL LENS OPACITIES. Myron Yanoff, M.D., David B. Schaffer, M.D.*, Guy Chan, M.D., Discussor.*

THE USE OF DONOR SCLERA IN LID AND FORNIX MODIFICATION PROCEDURES WITH SPECIAL EMPHASIS ON THYROID PROBLEMS. David B. Soll, M.D., Joseph C. Flanagan, Discussor.*

STEROIDS AND TRAUMATIC ANGLE RECESSION. Nibondh Vacharat, M.D.*, George L. Spaeth, M.D., Edwin U. Keates, M.D., Discussor.

IRIDECTOMY FOR EIGHT BALL HYPHEMIA. V. B. Bernardino, M.D.*, Glen G. Gibson, M.D., Discussor.

* By invitation.

19 April 1973

CURRENT APPROACHES TO THE DIAGNOSIS OF INTRAOCULAR TUMORS. P. Robb McDonald, M.D., Lov K. Sarin, M.D., Paul Carmichael, M.D., Jerry A. Shields, M.D.*, Jay Federman, M.D.*

18 October 1973

CLINICAL INDICATIONS FOR SPECIAL DIAGNOSTIC METHODS IN OPHTHALMOLOGY. Stephen L. Trokel, M.D.*, Joseph C. Flanagan, M.D., Paul L. Carmichael, M.D., Millard Croll, M.D.*, Lov K. Sarin, M.D., Larissa Bilaniuk, M.D.*

15 November 1973

THE OVERACTING INFERIOR OBLIQUE MUSCLE. Marshall M. Parks, M.D. (Thirty-sixth Annual DeSchweinitz Lecture)

17 January 1974

THE USE OF CONJUNCTIVAL RHINOSTOMY PROCEDURES IN SEVERE FACIAL TRAUMA. Randall W. Bell, M.D.* Discussant: Robert D. Mulberger, M.D.

CYSTOID MACULAR EDEMA. Roger A. Hitchings, M.D.* Discussant: Albert W. Zimmerman, Jr., M.D.

MULTIPLE SEROUS DETACHMENTS OF THE RETINAL PIGMENT EPITHELIUM AND SENSORY RETINA. Alfred C. Lucier, M.D.* Discussant: Edward A. Jaeger, M.D.

THE USE OF HOMOLOGOUS DONOR MATERIAL IN OPHTHALMIC PLASTIC AND ALSO IN GENERAL OPHTHALMIC SURGERY. David B. Zoll, M.D. Discussant: Gerard M. Shannon, M.D.

21 February 1974

THE DIAGNOSIS AND MANAGEMENT OF THE VISUALLY HANDICAPPED CHILD: THE ERG IN CHILDHOOD. Steven Charles, M.D.*

CLINICAL AIDS IN VISUAL EVALUATION IN CHILDHOOD. Joseph H. Calhoun, M.D.*

EDUCATION OF THE VISUALLY HANDICAPPED CHILD. Mr. Norman Reimer*

21 March 1974

ORBITAL HYPOXIA: Thomas R. Hedges, M.D. Discussant: Alan M. Laties, M.D.*

COATS' DISEASE AND TURNER'S SYNDROME. J. Douglas Cameron, M.D.* Myron Yanoff, M.D., William C. Frayer, M.D. Discussant: William S. Tasman, M.D.

FOUNDING OF THE SECTION ON OPHTHALMOLOGY OF THE COLLEGE OF PHYSICIANS. Harold D. Barnshaw

RETINAL MICROANGIOPATHIES SECONDARY TO CAROTID OCCLUSIVE DISEASE. Richard E. Goldberg, M.D. Discussant: Pedro Polakoff, II, M.D.*

18 April 1974

PNEUMOCEPHALUS—A COMPLICATION OF PENETRATING ORBITAL INJURY. George O. Waring, M.D.*, Joseph C. Flanagan, M.D. Discussant: Frederick P. Sutliff, M.D.

VISUAL SEQUELAE OF CLOSED HEAD TRAUMA. Edward W. Gerner, M.D.* Discussant: Morton W. Richman, M.D.*

A COMPREHENSIVE HYPOTHESIS REGARDING THE CAUSE FOR VISUAL LOSS IN PATIENTS WITH GLAUCOMA. George L. Spaeth, M.D., Roger A. Hitchings, M.D.* Discussant: H. W. Forster, M.D.

HISTOPATHOLOGIC FINDINGS IN HEMOGLOBIN SC DISEASE: A CASE REPORT. Ralph C. Eagle, Jr., M.D.*, Myron Yanoff, M.D. Discussant: Richard E. Goldberg, M.D.

SECTION ON OTOLARYNGOLOGY

17 January 1973

CYTOTOXIC REACTIONS IN ALLERGIC PATIENTS. Jack Clemis, M.D.

21 March 1973

SINUS SURGERY FOR DISEASES WITH OCULAR MANIFESTATIONS. Robert M. Hui, M.D. Discussant: Bernard J. Ronis, M.D.

SURGICAL TREATMENT OF MENIERE'S DISEASE. Kenneth H. Brookler, M.D. Discussant: Herbert Silverstein, M.D.

28 November 1973

LARYNGOLOGY AND LARYNGOLOGISTS—SOME HISTORICAL PERSPECTIVES. Peter W. Alberti, M.D.

THE PROGRESS OF LARYNGOLOGY IN THE FIRST HALF OF THE TWENTIETH CENTURY. Joseph P. Atkins, M.D.

CURRENT PRACTICE. Gabriel F. Tucker, Jr., M.D.

3 January 1974

RECEPTION FOR DR. AND MRS. LOUIS SILCOX, PRESIDENT, THE TRIOLOGICAL SOCIETY.

20 March 1974

CURRENT STATUS OF T & A PRACTICE. L. Dale Lowry, M.D. Discussants: Merrill Goodman, M.D. and Robert J. Rubin, M.D.

INDICATIONS FOR TONSILLECTOMY AND/OR ADENOIDECTOMY. Myles G. Turtz, M.D. Discussants: Merrill Goodman, M.D. and Robert J. Rubin, M.D.

SECTION ON MEDICAL HISTORY

29 January 1973

EARLY HISTORY OF VETERINARY MEDICAL EDUCATION IN AMERICA. Thomas N. Haviland.

ON THE HEALTH OF CHARLES DARWIN. Nicholas Padis, M.D.

19 March 1973

DETAILING DETAILS: THE PHARMACEUTICAL REPRESENTATIVE. George Ghazikian.

MEDICAL PHONOGRAPHY. Lawrence Charles Parish, M.D., Thomas N. Haviland.

THE HISTORICAL COLLECTIONS OF THE LIBRARY OF THE COLLEGE OF PHYSICIANS. Lisabeth M. Holloway, M.S. in L.S.

16 May 1973

GOUT CARICATURES OF THE 18th–20th CENTURY. John H. Talbott, M.D. (Kate Hurd Mead Lecture XXIV)

* By invitation.

24 September 1973

A. C. Barnes, M.D. vs. J. F. Schamberg, M.D.: A Chemotherapeutic Confrontation. Ira Leo Schamberg, M.D.

Medical Executive and Medical Organization: An Historical View. Richard M. Nelson.

26 November 1973

Early American Baby Rattles: A Pediatric Viewpoint. George S. Sturtz, M.D., M.S.

Postgraduate Medicine: The Past and Now. Jerome J. Harris, Ph.D.

7 January 1974

Puerperal Fever and Nineteenth Century Contagionism: The Obstetricians' Dilemma. J. Wister Meigs, M.D.

John Davidson Godman (1794–1830): Physician and Naturalist. Stephanie Morris, A.B.

11 February 1974

Personal Recollections of Holders of the John Rhea Barton Professorship of Surgery at the University of Pennsylvania School of Medicine. Robert H. Ivy, M.D.

12 March 1974

Medicine and Pharmacy in French Political Prints. William H. Helfand. (Samuel X Radbill Lecture)

8 May 1974

A New Look at Major Walter Reed. William B. Bean, M.D. (Kate Hurd Mead Lecture XXV).

Directory of Fellows of The College of Physicians of Philadelphia

(as of July 1, 1974)

Most of the following specialties of the Fellows of The College of Physicians of Philadelphia have been noted as listed in "Dorland's" or they have been obtained from other College records.

SCIENTIFIC-MEDICAL SPECIALTIES KEY

A	Allergy	OB	Obstetrics
Adm	Administration	OBG	Obstetrics & Gynecology
ALR	Otolaryngology	OM	Occupational Medicine
ANAT	Anatomy	ONC	Oncology
ANES	Anesthesiology	OPH	Ophthalmology
ARTH	Arthritis	OR	Orthopaedic Surgery
BIOC	Biochemistry	P	Psychiatry
C	Cardiovascular Disease	PATH	Pathology
ChiP	Child Psychiatry	Pd	Pediatrics
D	Dermatology	PdA	Pediatric Allergy
DDS	Doctor Dental Surgery	PdC	Pediatric Cardiology
DSc	Doctor Science	PH	Public Health
DVM	Doctor Veterinary Medicine	PHARM	Pharmacology
END	Endocrinology	PhD	Doctor of Philosophy
ENT	Enterology	PHYS	Physiology
FP	Family Practice	PL	Plastic Surgery
G	Gynecology	PM	Physical Medicine & Rehabilitation
GE	Gastroenterology	PN	Psychiatry & Neurology
HEMA	Hematology	PR	Proctology & Colon & Rectal Surgery
IMMUN	Immunology	PrM	Preventive Medicine
I	Internal Medicine	PUL	Pulmonary Disease
IND	Industrial Medicine	R	Radiology
INS	Insurance Medicine	REH	Rehabilitation
Med	Medical Education	RES	Research
Micro	Microbiology	RHEUM	Rheumatology
N	Neurology	S	Surgery
NEPH	Nephrology	TS	Thoracic Surgery
NS	Neurological Surgery	U	Urology
NUC	Nuclear Medicine		

Resident Fellows

ELECTED		SPECIALTY
1967.	Abbiss, Joseph W., St. Francis Hospital, 8th & Dupont Sts., Wilmington, Del. (19805)	PATH
1972.	Aberdeen, Eoin, 1 Children's Center, 34th & Civic Center (19104)	PdC S
1972.	Abt, Donald A., 24 Beech Ave., Aldan, Pa. 19018	DVM
1968.	Adams, Raymond E., #5 Split Rock Drive, Cherry Hill, N.J. (08003)	OPH
1961.	Adamson, William C., 1542 Susquehanna Rd., Rydal, Pa. (19046)	P Pd
1926.	Adler, Francis Heed, 8870 Towanda St., (19118)	OPH
1959.	Adlin, Albert, 1512 Lindley Ave. (19141)	I

ELECTED		SPECIALTY
1949.	AEGERTER, ERNEST E., R.D. #1, Chalfont, Pa. (18914)	PATH
1953.	AGERTY, HORST A., 1230 Burmont Rd., Drexel Hill, Pa. (19026)	Pd
1964.	ALBERT, SEYMOUR M., 1305 W. Tabor Rd. (19141)	OR
1963.	ALBRIGHT, EDWIN P., 805 E. Willow Grove Ave. (19118)	PR
1971.	ALDEN, JAMES C., Episcopal Hospital, Front and Lehigh Ave. (19125)	I
1967.	ALEXANDER, CHARLES M., 930 W. Sproul Road, Springfield, Pa. (19064)	OPH
1958.	ALEXANDER, JOHN DEAVER, 590 E. Chestnut St., Coatesville, Pa. (19320)	I
1972.	ALLAM, MARK W., 3800 Spruce St. (19104)	DVM
1935.	ALPERS, BERNARD J., 111 North 49th St. (19139)	N P
1960.	AMES, MARY D., 290 St. James Place (19106)	Pd
1961.	AMSTERDAM, GERALD H., 1201 W. Olney Ave. (19141)	S
1962.	ANNESLEY, WILLIAM H., JR., 39 Glendale Road, Upper Darby, Pa. (19082)	OPH
1961.	ANTHONY, RUSSELL A., 385 Lancaster Ave., Haverford, Pa. (19041)	P
1961.	APONTE, GONZALO E., 1025 Walnut St. (19107)	PATH
1930.	*APPEL, KENNETH E., 206 Glenn Rd., Ardmore, Pa. (19003)	P
1968.	APPLE, STANLEY B., 333 West State St., Trenton, N.J. (08618)	S
1971.	ARDIZONE, ROHLO A., 2109 Delancey Place (19103)	PL
1960.	AREY, JAMES B., 2600 N. Lawrence St. (19133)	PATH
1959.	ARKLESS, HENRY A., 2Decker Sq., 331 Kent Rd., Broomall, Pa. (19008)	D
1967.	ARMITAGE, HARRY V., 225 E. 24th St., Chester, Pa. (19013)	S
1922.	ARNETT, JOHN H., Kendal at Longwood, Kennett Square, Pa. (19348)	I
1967.	ARONSON, MARVIN E., 321 University Ave. (19104)	PATH
1974.	ASBURY, ARTHUR K., Dept. Neurology HUP (19104)	N
1952.	ASH, RACHEL, 326 S. 19th St. (19103)	Pd PdC
1952.	ASTON, MELVILLE J., 6 Circle Drive, Margate, N.J. (08402)	U PH
1935.	ATLEE, JOHN L., JR., 822 Marietta Ave., Lancaster, Pa. (17603)	S
1952.	ATLEE, WILLIAM A., 331 Johnson Pavilion, HUP, 3400 Spruce St. (19104)	S
1963.	AUSTRIAN, ROBERT, 411 Johnson Pav., Hospital of the University of Pennsylvania (19104)	I
1958.	AYELLA, ALFRED S., JR., 1213 S. Broad St. (19147)	S
1974.	AYERLE, ROBERT S., One Parkway, 14th floor (19102)	IND
1973.	BACHARACH, BENJAMIN, 829 Spruce St. (19107)	S
1973.	BACHMAN, LEONARD, 430 S. Fifth St. (19147)	ANES
1958.	BAER, SAMUEL, 5123 N. Broad St. (19141)	I C
1952.	BAIER, HOWARD N., 3401 N. Broad St. (19140)	I
1959.	BAIRD, HENRY WELLES, III., 2600 N. Lawrence St. (19133)	Pd
1952.	BAKER, HOWARD W., 1333 Chestnut St. (19107)	Adm
1963.	BAKER, RICHARD B., 2324 E. Allegheny Ave. (19134)	I
1967.	BAKER, RICHARD P., JR., 457 Derwyn Rd., Drexel Hill, Pa. (19026)	PATH
1946.	BAKER, WALTER W., 315 Glenn Rd., Ardmore, Pa. (19003)	U
1963.	*BALIN, HOWARD, 1323 Medical Arts Bldg., 1601 Walnut St. (19102)	OBG
1957.	BALTZELL, WILLIAM HEWSON, 1530 Locust St. (19102)	ALR
1971.	BANK, ARNOLD A., Albert Einstein Medical Center (Northern) (19141)	N
1969.	BANNETT, AARON D., 1335–49 W. Tabor Rd. (19141)	S
1940.	BARBA, PHILIP S., 120 Erdenheim Road (19118)	Pd
1943.	BARDEN, ROBERT P., 8835 Germantown Ave. (19118)	R
1939.	*BARNSHAW, HAROLD D., 526 Cooper St., Camden, N.J. (08102)	OPH
1957.	*BARR, STANLEY, 255 S. 17th St. (19103)	OBG
1939.	BARTLE, HARVEY, JR., Glenbrook Medical Bld., 864 County Line Rd., Bryn Mawr, Pa. (19010)	P N
1972.	BARTUSKA, DORIS, Med. Coll. Penna., 3300 Henry Ave. (19129)	Adm
1973.	BASS, FREDERIC, W-46 Dietrich Hall, Univ. Penna. (19174)	PrM
1963.	BASSETT, JAMES G., 3300 Henry Ave. (19129)	S INS
1971.	BASSETT, SAMUEL F., Prudential Ins. Co., P.O. Box 388, Ft. Washington, Pa. (19034)	INS
1932.	*BATSON, OSCAR V., 3926 Pine St. (19104)	ALR

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1921.	Bauer, Edward L., Alden Park Manor (19144)	Pd
1933.	Bauer, John T., 312 E. Second St., Moorestown, N.J. (08057)	PATH
1939.	Baumann, Frieda, 200 N. Wynnewood Ave., Wynnewood, Pa. (19096)	I
1973.	Beavers, Ellington, 931 Coates Rd., Meadowbrook, Pa. (19046)	Ph.D.
1973.	Beck, George D., 8813 Germantown Ave. (19118)	OBG
1971.	Beck, William C., Jr., Prudential Ins. Co., P.O. Box 388, Ft. Washington, Pa. (19034)	INS
1952.	*Bedrossian, E. Howard, 4501 State Rd., Drexel Hill, Pa. (19026)	OPH
1935.	Beerman, Herman, 255 S. 17th St. (19103)	D
1945.	Behrend, Bernard, 5910 Green St. (19144)	OM
1949.	Beizer, Lawrence H., 419 South 19th St. (19146)	I HEMA
1973.	Belafsky, Mark L., 905 Kings Highway, Cherry Hill, N.J. (08003)	ALR
1973.	Bell, Randall W., Stafford Bldg., #2, 200 Eagle Rd., Wayne, Pa. (19087)	OPH
1956.	Beller, Martin Leonard, 1936 Spruce St. (19103)	OR
1969.	Belmont, Herman S., 245 N. Broad St. (19107)	P ChiP
1956.	Belmont, Owen, 5723 No. Park Ave. (19141)	OPH
1959.	Berk, Nathaniel G., 3-M Cedarbrook Hill Apts., Wyncote, Pa. (19095)	I C
1973.	Berkowitz, Henry D., 1000 Raydin Bldg., 3400 Spruce St. (19104)	S
1951.	Bernstine, J. Bernard, Presidential Apts., City Line & Presidential Blvd. (19131)	OBG
1965.	Berry, Richard G., 1025 Walnut St. (19107)	N PATH
1956.	Berry, Theodore J., 164 Pennsylvania Ave., Bryn Mawr, Pa. (19010)	GE
1967.	Beyer, Karl H., Jr., P.O. #276, Gwynedd Valley, Pa. (19437)	RES IND
1957.	Biele, Albert M., 1530 Locust St. (19102)	P N
1964.	Biele, Flora H., 1103 Spruce St. (19107)	NP
1918.	Billings, Arthur E., 2020 Spruce St. (19103)	S
1957.	Birdsall, Thomas M., 3910 Powelton Ave. (19104)	U
1933.	Bishop, Paul A., The Dorchester, 226 W. Rittenhouse Sq. (19103)	R
1970.	Black, Herman M., 2101 Chestnut St. (19103)	NUC
1944.	*Blady, John V., Parkway House, 2201 Benjamin Franklin Pkwy. (19130)	S ONC
1970.	Blain, Daniel, 2100 Clarkson Ave. (19144)	P
1960.	Blake, Alton D., Jr., 960 County Line Rd., Bryn Mawr, Pa. (19010)	I
1952.	Blake, Paul O., 273 N. Lansdowne Ave., Lansdowne, Pa. (19050)	FP S
1958.	*Blakemore, William S., P.O.B. 6190, Med. Coll. of Ohio, Toledo, O. (43614)	S TS
1971.	Blizzard, John J., 2200 Providence Road, Chester, Pa. (19013)	END
1917.	Block, Frank B., A1124 Park Drive Manor (19144)	S
1963.	Block, Reuben, 1555 Haddon Ave., Camden, N.J. (08103)	U
1969.	Blocklyn, Maurice J., School Lane, Rose Valley, Moylan, Pa. (19065)	R
1972.	Bloom, Shirley S., 51 N. 39th St. (19104)	ANES
1973.	*Blumstein, Charles G., 711 Swade Rd., Erdenheim, Pa. (19018)	A
1949.	*Blumstein, George I., 2039 Delancey St. (19103)	I A
1929.	*Bockus, Henry L., 250 S. 18th St. (19103)	I GE
1974.	Boggs, Thomas R., Jr., Pennsylvania Hosp. (19107)	Pd
1928.	*Boles, Russell S., Rittenhouse Plaza, 1901 Walnut St. (19103)	I GE
1961.	Bongiovanni, Alfred M., Children's Hosp. of Phila., 34th and Civic Center Blvd. (19104)	Pd
1948.	Bookhammer, Robert S., 249 Hilldale Rd., Villanova, Pa. (19085)	P
1974.	Botelho, Stella Y., 1417 Rittenhouse Claridge, E. Rittenhouse Sq. (19103)	PHYS
1947.	Bourland, Henry S., 2219 Garrett Rd., Drexel Hill, Pa. (19026)	PR
1961.	Bouzarth, William F., Episcopal Hospital (19125)	NS PrM
1961.	Bove, Frank A., 2301 Pennsylvania Ave. (19130)	I
1972.	Bovee, Kenneth C., 313 Land's End Rd., Devon, Pa. (19333)	DVM
1968.	Bowen, Thales, Jr., Lankenau Hosp. (19151)	ANES
1954.	Bowers, Paul A., 2031 Locust St. (19103)	OBG
1942.	Bowie, Morris A., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	I RHEUM
1963.	Boyer, Randall A., Holy Redeemer Hospital, Meadowbrook, Pa. (19064)	R

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1964.	Brackin, John T., Jr., 773 Roslyn Ave., Glenside, Pa. (19038)	R
1971.	Bradley, Robert H., Jr., 33 E. Chhestnut Hill Ave. (19118)	U
1965.	Brady, Anna M., 3302 W. Queen Lane (19129)	OR REH
1959.	Brady, Luther W., 230 N. Broad St. (19102)	R
1954.	Bralow, S. Philip, 1025 Walnut St. (19107)	I GE
1948.	Braun, William, 406 Cooper St., Camden, N.J. (08102)	OPH
1953.	*Brav, Solomon S., 5575 N. Park Ave. (19141)	OPH
1953.	Breckenridge, Robert L., 13 Cunningham Lane, Cherry Hill, N.J. (08034)	PATH
1964.	Brenman, Arnold K., 8040 Roosevelt Blvd. (19152)	ALR
1972.	Brennan, James T., Ground Fl. Dulles Bldg., 3400 Spruce St. (19104)	R
1966.	Brent, Robert L., Jefferson Medical College (19107)	Pd
1961.	Breslow, Irwin H., 1924 Panama St. (19103)	I
1973.	Brightman, Vernon J. F., Bldg. 10, 3d floor, PGH (19104)	DDS
1946.	*Briscoe, Clarence Conway, 727 Delancey St. (19107)	OBG
1953.	Brobeck, John R., 136 Med. Bldg., Univ. of Pa. School of Medicine (19104)	RES NP
1958.	Brody, Henry, Einstein Medical Center, York & Tabor Rds. (19141)	PATH
1965.	Brody, Jerome I., Graduate Hospital, 19th & Lombard Sts. (19146)	I HEMA
1952.	Brody, Morris W., 2 W. Levering Mill Rd., Cynwyd, Pa. (19004)	P
1948.	Brogan, Edmund J., 4601 Market St. (19139)	ALR
1958.	Brooks, Frank P., 574 Maloney Bldg., Hospital of the Univ. of Pa. (19104)	GE
1932.	*Brown, Claude P., 6401 Wissahickon Ave. (19119)	PATH
1963.	Browne, Laurence T., Presidential Apts., D126 (19131)	I
1971.	Brucker, Paul C., Chief, Dept. of Family Medicine, Jefferson Medical College, 1025 Walnut St. (19107)	FP
1961.	Brunt, Manly Y., 111 N. 49th St. (19139)	P
1939.	Brust, Raymond M., 301 Mill Rd., Havertown, Pa. (19083)	I A
1969.	Bryant, Winston M., Jr., 5900 Spruce St. (19139)	OPH
1971.	Buch, Heriberto E., 211 Shadeland Ave., Lansdowne, Pa. (19050)	OPH
1969.	Buchheit, William A., 3401 N. Broad St. (19140)	NS
1961.	Buerk, Minerva S., Suite 110, Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	D
1971.	Bullock, Samuel C., 6th floor, 5000 Woodland Ave. (19143)	P
1973.	Bulluck, David E. Jr., 530 Walnut St. (19106)	I
1973.	Burg, Fredric D., 3930 Chestnut St. (19104)	Pd
1962.	*Burgoon, CarrollF., Jr., Skin & Cancer Hospital, 332 N. Broad St. (19140)	D
1940.	*Burnett, W. Emory, 47 E. Righters Mill Rd., Narberth, Pa. (19072)	S
1966.	Burns, William P., Scheie Inst., 51 N. 39th St. (19104)	OPH
1954.	Burros, Harry M., 419 S. 19th St. (19146)	U
1968.	Burrows, Stanley, Cooper Hosp., Camden, N.J. (08103)	PATH
1966.	Burstein, Frank, 8541 Bustleton Ave. (19152)	FP
1970.	Butcher, James, 51 N. 39th St. (19104)	PATH
1941.	Butler, Miriam, Watersmeet, Glen Mills, Pa. (19342)	I
1957.	*Butterworth, Thomas, 411 Walnut St., Reading, Pa. (19601)	D
1965.	Byron, Harold J., Wyncote House, Wyncote, Pa. (19095)	PN
1966.	Cahn, Milton M., 1930 Chestnut St. (19103)	D
1957.	Calhoun, John Alfred, Jr., P.O. Box A, Swarthmore, Pa. (19081)	OM
1958.	Cameron, Charles S., 230 N. Broad St. (19102)	Adm
1962.	Camishion, Rudolph C., Suite 303, Cooper Parkway West, N. Park Drive & Airport Highway, Pennsauken, N.J. (08109)	S
1972.	Camp, William P., Adams Ave. & Roosevelt Blvd. (19124)	P Adm
1964.	Cancelmo, Jesse J., Jr., 337 W. Lancaster Ave., Wayne, Pa. (19087)	S
1970.	Canino, Christopher W., 433 Aldan Ave., Aldan, Pa. (19018)	R
1973.	Cappuccio, Matthew S., 1809 S. 12th St. (19148)	OBG
1967.	Carabasi, Ralph A., Suite 1920, 130 S. 9th St. (19107)	I
1935.	Carey, Lawrence S., 2245 Garrett Road, Drexel Hill, Pa. (19026)	I
1971.	Carfagno, Salvatore C., 1401 De Kalb St., Norristown, Pa. (19401)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1970.	Carmichael, Paul L., 1000 N. Broad St., Lansdale, Pa. (19446)	OPH
1959.	Carrington, Elsie R., The Medical College of Pennsylvania, 3300 Henry Ave. (19129)	OBG
1960.	Carroll, Robert T., 1015 Chestnut St., Jefferson Bldg., Room 803 (19107)	I HEMA
1917.	Carson, John B., P.O. Box 291 Newton Square, Pa. (19073)	I
1956.	Casey, Paul R., 8350 Roosevelt Blvd. (19152)	S
1943.	Castigliano, S. Gordon, Central & Shelmire Aves. (19111)	R S
1949.	Caswell, H. Taylor, 3401 N. Broad St. (19140)	S
1954.	Cathcart, Richard T., Jefferson Hospital, 1025 Walnut St. (19107)	PUL
1974.	Cecil, Henry, Children's Hospital (19104)	Pd
1974.	Chait, Arnold, Dept. Radiology HUP (19104)	R
1950.	*Chamberlain, Richard H., Grd. Fl., Ravdin Bldg., 3400 Spruce St. (19104)	R
1939.	Chamberlin, George W., Reading Hospital, Reading, Pa. (19602)	R
1967.	Chambers, Richard A., 1025 Walnut St. (19107)	N
1966.	Chamblin, William D., Suite 303, 3900 Powelton Ave. (19104)	OBG
1974.	Chance, Britton, Johnson Fdn., Univ. Penna. Med. Sch. (19174)	BioC PhD DSc
1945.	Chance, Burton, Jr., 4400 Baltimore Ave. (19104)	OR
1958.	Channick, Bertram J., 3401 N. Broad St. (19140)	I
1973.	Chapman, Joseph L., Suite 708, 255 S. 17th St. (19103)	S
1954.	*Charny, Charles W., 2039 Delancey Pl. (19103)	U
1966.	Chernoff, Benjamin, 6901 Old York Rd. (19126)	I
1969.	Chesnick, Reuben B., 517 Penn St., Camden, N.J. (08102)	R
1960.	Chirico, Anna-Marie, 218 Maloney Bldg., Hosp. of Univ. of Pa. (19104)	I
1966.	Chisum, Melvin J., 245 N. Broad St. (19107)	I
1971.	Chmielewski, Robert E., 8040 Roosevelt Blvd. (19152)	HEMA
1939.	Ciccone, Emmet F., 6501 Troy Court, FPG, Cornwells Hgts., Pa. (19020)	PATH
1960.	Clader, Stanley C., 825-A Glenbrook Ave., Bryn Mawr, Pa. (19010)	OBG
1951.	Clagett, A. Henry, Jr., 515 W. Eighteenth St., Wilmington, Del. (19802)	C
1966.	Clark, Gerald R., Elwyn School, Elwyn, Pa. (19063)	P
1962.	Clark, James E., Crozer-Chester Med. Center, 15th & Upland Aves., Chester, Pa. (19013)	I
1951.	Clark, John Kapp, 843 Parkes Run Lane, Villanova, Pa. (19085)	I
1947.	*Clark, Thomas William, 6 Moreland Circle (19118)	I C
1971.	Clearfield, Harris R., 720 Oxford Road, Bala Cynwyd, Pa. (19004)	I
1963.	Cleveland, Albert F., 615 Morgan Ave., Drexel Hill, Pa. (19026)	OPH
1972.	Close, Henry P., 8835 Germantown Ave. (19118)	I
1972.	Coffey, William F. X., Assoc. Med. Dir., Fidelity Mutual Life Ins. Co. (19101)	I
1973.	Cohen, D. Walter, 4001 Spruce St. (19174)	DDS
1969.	Cohen, Erwin R., 6735 Harbison Ave. (19149)	S
1973.	Cohen, Herbert E., 225 S. Van Pelt St. (19103)	I
1970.	Cohen, Norman N., Mercy Catholic Med. Cntr., Darby, Pa. (19023)	GE
1953.	Cohen, Robert V., 520 Spring Ave., Elkins Park, Pa. (19117)	I
1967.	*Cohen, Sarle H., 1201 W. Olney Ave. (19141)	I ARTH
1965.	Cohn, Edwin M., 1351 Tabor Rd. (19141)	I GE
1964.	Cohn, Herbert E., 829 Spruce St. (19107)	S TS
1970.	Cohn, Ronald E., 4940 Frankford Ave. (19124)	I END
1949.	Conger, Kyril B., 3401 N. Broad St. (19140)	U
1974.	Conly, Samuel S., Jr., 1025 Walnut St. (19107)	PHYS
1971.	Connor, Robert W., 601 E. Main St., Lansdale, Pa. (19446)	OPH
1961.	Coon, Julius M., Thomas Jefferson Univ., 1020 Locust St. (19107)	PHARM
1945.	Coonel, Pauline, 47 E. Mt. Pleasant Ave. (19119)	ALR
1953.	*Cooper, Donald R., 3300 Henry Ave. (19129)	S
1960.	Cooper, Edward Sawyer, 6710 Lincoln Drive (19119)	I
1947.	Coppolino, John F., 22 Pickthorn Drive, Batavia, N.Y. (14020)	Pd
1973.	Coriell, Lewis L., Inst. Med. Res. Copewood St., Camden, N.J. (08103)	IMMUN

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1973.	CORNFELD, DAVID, 1120 Woodbine Ave., Narberth, Pa. (19072)	Pd
1972.	CORNMAN, HENRY D., III, 801 Old Lancaster Road, Bryn Mawr, Pa. (19010)	PATH
1959.	CORMENY, GEORGE F., 3818 Chestnut St. (19104)	I
1965.	CORNELISON, FLOYD S., JR., 1025 Walnut St. (19107)	P
1970.	COSSA, JOHN P., 1900 S. Broad St. (19145)	S
1940.	COWAN, THOMAS H., RAINTREE 703, King and Sugartown Rds., Malvern, Pa. (19355)	DPH
1966.	CRAM, ROBERT H., 918 County Line Rd., Bryn Mawr, Pa. (19010)	OR
1947.	*CRANE, A. REYNOLDS, Pennsylvania Hospital (19107)	PATH
1973.	CREECH, RICHARD H., 1135 Goodman Ave., Fort Washington, Pa. (19034)	ONC
1952.	CRELLIN, J. ANTRIM, 1930 Chestnut St. (19103)	PUL
1970.	CRESSON, SAMUEL L., Lankenau Medical Building (19151)	S Pd
1955.	CRIST, WALTER A., 211 N. 5th St., Camden, N.J. (08102)	C
1968.	CROLL, MILLARD N., Hahnemann Hosp. (19102)	R
1973.	CUNDY, KENNETH R., 513 Delancey St. (19106)	PhD Micro
1959.	CULLEN, MILTON L., P.O. Box 6135, Phila., Pa. (19115)	S
1934.	CUSTER, R. PHILIP, 643 Moreno Road, Narberth, Pa. (19072)	PATH HEMA ONC
1938.	DANNENBERG, ARTHUR M., SR., 235 S. 15th St. (19102)	Pd
1973.	D'AQUILI, EUGENE G., 609 Newtown Rd., Berwyn, Pa. (19312)	P
1968.	DAUGHTRIDGE, TRUMAN G., 8835 Germantown Ave. (19118)	R
1969.	DAVIDSON, JAY H., 1002 Spruce St. (19107)	I GE
1953.	DAVIE, JOHN H., 216 N. Broad St. (19102)	I
1973.	DAVIES, ALLEN L., 615 W. 18th St., Wilmington, Del. (19802)	C TS
1947.	*DAVIS, C. NELSON, 524 Howe Rd., Merion Station, Pa. (19066)	N P
1936.	DAVIS, DAVID M., 818 Pennstone Rd., Bryn Mawr, Pa. (19010)	U
1951.	*DAVIS, J. WALLACE, 135 S. 18th St. (19103)	PL
1971.	DEAKINS, JAMES S., 33 E. Chestnut Hill Ave. (19118)	OR
1971.	DEAS, THOMAS C., 3401 N. Broad St. (19140)	ANES
1935.	*DEAVER, J. MONTGOMERY, Suite 305, Lankenau Medical Bldg. (19151)	S
1957.	DECKER, JOHN PAUL, Pennsylvania Hospital (19107)	PATH
1957.	DEES-PORCH, FRANCES, Glendale Road & Chestnut Sts., Upper Darby, Pa. (19082)	OBG
1958.	DEITZ, GEORGE W., III, 2240 Pine Rd., Huntingdon Valley, Pa. (19006)	C
1974.	DELAPLANE, JAMES M., Friends Hospital (19124)	P
1952.	DELUCA, CHARLES Q., 255 S. 17th St. (19103)	ALR
1969.	DENBO, ELIC A., 300 Broadway, Camden, N.J. (08103)	P
1952.	DE ORSAY, RALPH H., 1241 Lindale Ave., Drexel Hill, Pa. (19027)	FP
1951.	*DE PALMA, ANTHONY F., 248 S. 21st St. (19103)	OR
1963.	DERHAM, ROBERT J., McClatchy Bldg., 69th and Market Sts., Upper Darby, Pa. (19082)	S
1966.	DERIVAS, CARMELA F., 700 Joseph Dr., Wayne, Pa. (19087)	P
1969.	DESIDERIO, VINCENT C., 1907 S. Broad St. (19148)	I
1959.	DETUERK, JOHN J., 2301 S. Broad St. (19148)	S
1959.	DICKENS, HELEN O., 106 Dulles Bldg., University of Pa. Hosp. (19104)	OBG
1958.	DICKSTEIN, BENJAMIN, 6810 Castor (19124)	Pd
1952.	DIGILIO, VICTOR A., 2200 St. James Place (19103)	I C
1963.	DIMARINO, ANTHONY J., 735 Delaware St., Paulsboro, N.J. (08066)	I
1960.	DINON, LOUIS R., 330 S. 9th St. (19107)	I C
1968.	DIPALMA, JOSEPH R., 235 N. 15th St. (19102)	I
1973.	DODDS, H. THOMAS, 148 David Drive, Havertown, Pa. (19083)	OPH
1948.	DOHAN, FRANCES CURTIS, 80 Princeton Road, Cynwyd, Pa. (19004)	I
1969.	DOLPHIN, JOHN M., 235 N. 15th St. (19102)	PATH
1972.	DOMBROSKI, WALTER J., 3201 Comly Place (19154)	S
1954.	DONALDSON, JAMES B., 3401 N. Broad St. (19140)	I
1967.	DONNELLY, JOSEPH C., JR., Suite 305, Lankenau Medical Bld., (19151)	TS
1967.	DOUGHERTY, MALVIN J., 34 Copley Rd., Upper Darby, Pa. (19082)	OPH

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1964.	DRATMAN, MARY B., Henry Ave. & Abbottsford Road (19129)	I
1952.	DRAYER, CALVIN S., 111 N. 49th St. (19139)	PN ChiP
1969.	DROSSNER, JACOB L., 101 E. Cooper River Plaza, Pennsuaken, N.J. (08109)	I
1974.	DUBOIS, ARTHUR B., Dept. Physiology, Univ. of Penna.	PHYS
1935.	DUNCAN, GARFIELD G., 330 S. 9th St. (19107)	I
1966.	DUNCAN, THEODORE G., 330 S. Ninth St. (19107)	I
1953.	DUPLER, DONALD A., 4028 Walnut St. (19104)	I C
1942.	*DURANT, THOMAS M., 1242 Lafayette Rd., Gladwyne, Pa. (19035)	I C
1962.	D'ZMURA, THOMAS L., 944 Summit Ave., Narberth, Pa. (19072)	P
1969.	DZWONCZYK, JOHN, JR., 45 Ashby Rd., Upper Darby, Pa. (19082)	S
1936.	EASBY, MARY HOSKINS, R.D. 2, Shelburne, Vt. (05482)	I
1974.	EDMUNDS, LOUIS H., JR., 1000 Ravdin Bildg., 3400 Spruce St. (19104)	CS
1966.	EHRLICH, GEORGE E., Albert Einstein Medical Center, N.D. (19141)	I ARTH
1956.	*EIMAN, JOHN W., Abington Memorial Hospital, Abington, Pa. (19001)	PATH
1958.	*EISMAN, SYLVAN H., 230 Maloney Bldg., 3600 Spruce St. (19104)	I
1971.	EISNER, JOEL W., 603 S. Main St., Phoenixville, Pa. (19460)	I
1959.	ELIAS, ELMER J., 10 Monticello Ave., Trenton, N.J. (08618)	PM REH
1961.	ELLIOTT, FRANK A., 807 Spruce St. (19107)	N
1957.	ELLIS, RICHARD A., 255 S. 17th St. (19103)	OPH
1955.	ELLIS, SAMUEL, 275 Bryn Mawr Ave., Bryn Mawr, Pa. (19010)	FP
1939.	ELLIS, VAN MASHBURN, 1274 Lindsay Lane, Rydal, Pa. (19046)	OPH
1928.	ELLISON, RICHARD T., Medical Office Bldg., 1245 Highland Ave., Abington, Pa. (19001)	I
1936.	ELLSON, J. VERNON, Glendale Road & Chestnut St., Upper Darby, Pa. (19082)	OBG
1937.	*ELSOM, KENDALL A., Scott Paper Co. (19113)	I OM IND
1932.	ENGEL, GILSON C., Lankenau Medical Bldg. (19151)	S
1945.	*ENGLISH, O. SPURGEON, 499 Righters Mill Rd., Narberth, Pa. (19072)	P
1973.	ENGSTROM, PAUL F., Central & Shelmire Aves. (19111)	HEMA ONC
1973.	ENTERLINE, HORATIO T., 13 Manchester Ave., Moylan, Pa. (19065)	PATH
1965.	EPSTEIN, ISADORE S., 3950 Conshohocken Ave. (19131)	I A
1942.	ERB, WILLIAM H., Medical Bldg., Presbyterian-Univ. of Penna. Med. Center, 3910 Powelton Ave. (19104)	S
1957.	*ERDMAN, WILLIAM JAMES, II, 544 Gates Bldg., W., 3400 Spruce St. (19104)	PM
1965.	ERSLEY, ALLAN J., 1015 Sansom St. (19107)	I HEMA
1973.	ESKIN, BERNARD A., Medical Suite 124, Madison House, Presidential Apts. (19131)	OBG
1957.	ETZL, MICHAEL M., 9025 Frankford Ave. (19114)	C
1955.	EYNON, HAROLD K., S. Jersey Med. Cntr., Route 70, Cherry Hill, N.J. (08033)	I
1973.	FADALI, A. MONEIM A., Temple Health Sciences Cntr. (19140)	C TS
1968.	FALUDI, GEORGINA, 216 N. Broad St. (19102)	I
1946.	FARELL, DAVID M., 1912 Spruce St. (19103)	OBG
1953.	FARRELL, HARRY L., The Chatham, 135 S. 20th St. (19103)	S
1964.	FAUST, HERBERT A., Paoli Memorial Hosp. Med. Bldg., W. Lancaster Ave., Paoli, Pa. (19301)	N
1936.	*FETTER, FERDINAND, 322 S. 21st St. (19103)	I
1952.	*FIELDS, HARRY, 133 S. 36th St. (19104)	OBG
1973.	FIGUEROA, WILLIAM G., 1016 Hagy's Ford Rd., Narberth, Pa. (19072)	I
1959.	*FINEBERG, CHARLES, Franklin Med. Bldg., 829 Spruce St. (19107)	S TS
1955.	FINESTONE, ALBERT J., 3701 J., 3701 North Broad St. (19140)	I
1955.	FINKELSTEIN, DAVID, 419 S. 19th St. (19146)	I C
1955.	*FINLEY, JOHN K., King's Highway West, Haddonfield, N.J. (08033)	OPH
1954.	*FINN, JOSEPH L., 8014 Burholme Ave. (19111)	OBG
1947.	FIRST, ARTHUR, 255 S. 17th St., Suite 2000 (19103)	OBG
1950.	*FISCHER, H. KEITH, School House Lane, 5450 Wissahickon Ave. (19144)	P
1962.	FISHER, GEORGE R., III, Suite 308, 829 Spruce St. (19107)	I
1958.	FISHER, ROBERT M., 118 Airdale Rd., Rosemont, Pa. (19010)	FP

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1973.	FISHMAN, AARON E., 6618 Woodland Ave. (19142)	PH
1970.	FISHMAN, ALFRED P., 871 Maloney Bldg., HUP (19104)	I
1956.	FITE, FRANKLIN K., Germantown Hosp. (19144)	PATH
1952.	FITTS, WILLIAM T., JR., 1000 Ravdin Bldg., 3400 Spruce St. (19104)	S
1971.	FLANDREAU, RICHARD H., Media Clinic, Media, Pa. (19063)	S
1970.	FLEISCHMAJER, RAUL, 230 N. Broad St. (19102)	D
1952.	FLEXNER, LOUIS B., 248 Anatomy-Chemistry Bldg., Univ. of Pa. (19104)	ANAT
1928.	*FLICK, JOHN B., 819 Black Rock Rd., Gladwyne, Pa. (19035)	S TS
1957.	FORNWALT, GEORGE R., 47 Copley Rd., Upper Darby, Pa. (19082)	OBG
1954.	FORSTER, H. WALTER, JR., 37 S. 20th St. (19103)	OPH
1974.	FORSTER, ROBERT E., A-201 Richards Bldg., Univ. Penna. (19174)	PHYS
1960.	FOULGER, JOHN H., 601 Rockwood Rd., Wilmington, Del. (19802)	OM
1972.	FOX, CLAIRE G., 380 Shady Retreat Road, Doylestown, Pa. (18901)	Ph.D.
1974.	FRANK, BARBARA B., Crozer-Chester Med. Cntr., Chester, Pa. (19013)	GE
1963.	FRANK, PAUL E., York Road & Summit Ave., Hatboro, Pa. (19040)	OPH
1963.	FRANK, ROBERT L., 331 N. York Rd., Hatboro, Pa. (19040)	OPH
1968.	FRANKL, WILLIAM S., 1121 Cornwall Lane, St. Davids, Pa. (19087)	I
1955.	FRAYER, WILLIAM C., Scheie Eye Inst., 51 N. 39th St. (19104)	OPH
1941.	FRAZIER, WILLIAM DOANE, 419 Gilpin Rd., Narberth, Pa. (19072)	S IND
1972.	FREDERIC, MYRON W., 51 N. 39th St. (19104)	I N
1952.	FREED, HERBERT, 431 W. Upsal St. (19119)	PN
1956.	FREEMAN, JOSEPH T., 1530 Locust St. (19102)	I
1958.	FREIWALD, MILTON J., 222 S. 19th St. (19103)	OPH
1955.	FRIEDENBERG, ZACHARY B., 133 S. 36th St. (19104)	OR
1973.	FRIEDMAN, ADELE K., 21 Dulles Bldg. HUP (19104)	R
1951.	FRIEDMAN, PAUL SIGMUND, 1422 Chestnut St. (19102)	R
1960.	FRIEDMAN, SIDNEY, Children's Hosp. of Phila., 34th and Civic Center Blvd. (19104)	Pd PdC
1958.	FRISCH, FREDERICK, 7 S. Dudley Ave., Ventnor City, N.J. (08046)	OPH
1937.	FRITZ, HERBERT H., Pennswood Rd., Bryn Mawr, Pa. (19010)	FP
1961.	FROBESE, ALFRED S., Abington Memorial Hosp., Abington, Pa. (19001)	S TS
1935.	FRY, WILFRED EYLES, 1930 Chestnut St. (19103)	OPH
1963.	FURGIUELE, FRANCIS P., 5430 Greene St., (19144)	OPH
1937.	FURLONG, THOMAS F., JR., 630 Black Rock Rd., Bryn Mawr, Pa. (19010)	ALR
1967.	FUTCHER, PALMER H., 3930 Chestnut St. (19104)	I
1972.	GABRIELSON, IRA W., 3300 Henry Ave. (19129)	PM
1964.	GALLIGAN, WILLIAM J., 2909 Garrett Road, Drexel Hill, Pa. (19026)	I
1954.	GAMBESCIA, JOSEPH M., 1907 S. Broad St. (19148)	I GE
1969.	GANZ, MICHAEL A., R.D. #2 Box 207, Perkasie, Pa. (18944)	P
1966.	GARCIA, CELSO-RAMON, 106 Dulles Bldg., University Hospital (19104)	OBG
1971.	GARDNER, FRANK H., 51 N. 39th St. (19104)	I HEMA
1951.	GARLICHS, RICHARD W., 216 N. Monoa Road, Havertown, Pa. (19083)	ALR A
1931.	GARNER, VAUGHN C., 477 East Wadsworth St. (19119)	D
1953.	GARNET, JAMES D., 807 Spruce St. (19107)	OBG
1959.	GARTLAND, JOHN J., 621 Curtis Clinic Bldg., 1015 Walnut St. (19107)	OR
1950.	GARVIN EUGENE J., Apt. E-C, Green Hill Apts., 1011 City Line (19151)	OM
1972.	GATTER, ROBERT A., 1245 Highland Ave., Abington, Pa. (19001)	I
1958.	GECKELER, GEORGE D., 22 W. Bells Mill Rd. (19118)	C
1952.	GEFTER, WILLIAM I., Episcopal Hosp. (19125)	I
1969.	GEHRING, DAVID A., Medical Arts Bldg., Suite 21, W. Red Bank Ave., Woodbury, N.J. (08096)	I C
1935.	GIEST, DONALD C., 1205 Penn Wynne House, 2201 Bryn Mawr Ave., (19131)	S
1955.	GELFAND, DAVID, 1722 Pine St. (19103)	I C
1965.	GEORGES, THOMAS W., JR., 3400 N. Broad St. (19140)	PH
1959.	GERSON, IRVIN M., Cedarbrook Apts., Cedarbrook Hills, Wyncote, Pa. (19095)	NP
1968.	GERSTLEY, LOUIS, III, Cedarbrook Hill Apt. CM23, Wyncote, Pa. (19095)	OBG

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1965.	Gianakon, Harry G., 109 Quaker Lane, Haverford, Pa. (19041)	P
1939.	*Gibson, Glen Gregory, 2031 Locust St. (19103)	OPH
1944.	Gifford, Edward S., Jr., 1913 Spruce St. (19103)	OPH
1956.	Gilbert, Philip D., Cooper Hospital, Camden, N.J. (08103)	R
1967.	Gilbert, Robert P., 1025 Walnut St. (19107)	I
1947.	Giletto, Bash. J., 2020 Locust St. (19103)	OBG
1955.	Gill, Robert J., 715 Spruce St. (19106)	I
1952.	Gilpin, Sherman F., Jr., 620 Mulford Rd., Wyncote, Pa. (19095)	PN
1965.	Ginley, Thomas H., Jr., Presidential Apts. (19131)	U
1949.	Ginsburg, Isadore W., 3401 N. Broad St. (19140)	I
1958.	Girsh, Leonard S., Benjamin Fox Pavilion, Jenkintown, Pa. (19046)	I
1954.	Gislason, Gerhard J., 1245 Highland Ave., Abington, Pa. (19001)	U
1971.	Glaser, Frederick B., EPPI, Henry Ave., & Abbottsford Rd. (19129)	P
1973.	Glass, Dorothea D., 935 Melrose Ave., (19126)	PM
1973.	Glauser, Elinor M., Temple Health Sciences Cntr. (19140)	PHARM PHYS
1967.	Glauser, Stanley C., 630 Richards Rd., Wayne, Pa. (19087)	HEMA
1964.	Gloeckner, M. Louise C., 110 E. Fourth Ave., Conshohocken, Pa. (19428)	FP
1974.	Goddard, David R., Biology Dept., Univ. Penna. (19174)	BioC PhD
1974.	Goddard, Katharine E., 490 E. Abington Ave. (19118)	Pd P
1956.	Goldberg, Harry, 7913 Rolling Green Rd., Cheltenham, Pa. (19012)	C
1973.	Goldberg, Martin, 158 Gramercy Rd., Bala-Cynwyd, Pa. (19004)	P
1970.	Goldberg, Richard E., 1333 Buck Road, Feasterville, Pa. (19047)	OPH
1965.	Goldburgh, Warren P., 275 S. 19th St. (19103)	I C
1971.	Goldfarb, Alvin F., Suite 1530, 130 S. 9th St. (19107)	OBG
1969.	Goldman, Leonard I., Templet Univ. Hosp. (19140)	S
1974.	Goldschmidt, John W., 1025 Walnut St. (19107)	I
1972.	Goldsmith, Harry S., 1025 Walnut St. (19107)	S
1965.	Goodman, David H., 6816 Castor Ave. (19149)	I
1956.	Goracci, Armando F., Medical Arts Bldg., Woodbury, N.J. (08096)	S
1968.	Gordon, Jacob S., 5119 N. Broad St. (19141)	PR
1968.	Gordon, Kenneth H., Jr., 1250 Upper Gulph Rd., Radnor, Pa. (19087)	P
1937.	Gordon, William, 5345 Spruce St. (19139)	ALR
1964.	Gottlieb, Harry, 5555 Wissahickon Ave. (19144)	I
1964.	Gottlieb, Philip M., 818 Medical Arts Bldg., 16th & Walnut Sts. (19102)	I A
1967.	Gould, Robert A., 701 N. Pennsylvania Ave., Morrisville, Pa. (19067)	I
1956.	*Gouley, Benjamin, 1201 W. Olney Ave. (19141)	I C
1971.	Graff, Harold, 111 N. 49th St. (19139)	P
1966.	Grant, B. David, Sproul & Lawrence Rd., Broomall, Pa. (19008)	OR
1965.	Grassi, Michael O. A., 2038 Locust St. (19103)	P N
1974.	Gray, Frank D., Jr., Lankenau Hosp. (19151)	I
1965.	Greenbaum, Charles H., 8220 Castor Ave. (19152)	D
1972.	Greenberg, Leonard, 1335 Tabor Road (19141)	N
1971.	Greenberg, Jack O., Front & Lehigh Ave. (19125)	N
1940.	Greene, Lloyd B., 326 S. 19th St. (19103)	U
1973.	Greenfield, Val S., 5001 Frankford Ave. (19124)	OPH
1941.	Groff, Robert A., Suite 2306–08 Medical Tower, 255 S. 17th St. (19103)	PN NS
1973.	Grossman, Eric J., Med. College of Penna. (19129)	ANES
1952.	*Grotzinger, Paul J., 2121 Valley Rd., Huntingdon Valley, Pa. (19006)	S ONC
1952.	*Grove, D. Dwight, 5025 N. Marvine St. (19141)	ANES
1966.	Guthrie, Marshall B., 1500 Spring Garden St. (19101)	D
1945.	György, Paul, Philadelphia General Hospital (19104)	Pd
1969.	Haase, Gunther R., 3401 N. Broad St. (19104)	N
1935.	Hadden, Samuel B., 946 Remington Rd., Wynnewood, Pa. (19096)	PN
1945.	Hahn, George A., 255 S. 17th St. (19103)	OBG
1967.	Haines, Keith E., 1210 Brace Rd., Cherry Hill, N.J. (08034)	OR
1972.	Haines, William F., 702 Monument Road, Malvern, Pa. (19355)	A FP

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1964.	HALL, JOHN H., 3401 N. Broad St. (19140)	S
1955.	HALLAHAN, JOHN D., 104 W. Front St., Media, Pa. (19063)	I
1951.	HALLETT, JOSEPH W., 136 S. 16th St. (19102)	OPH
1972.	HAMILTON, JOHN W., 33 E. Chestnut Hill Ave. (19118)	DDS
1967.	HAMMOND, JONATHAN A., 433 Bellevue Ave., Trenton, N.J. (08618)	S
1954.	HAND, B. MARVIN, 1801 Pennsylvania Blvd. (19103)	PN
1938.	HAND, JOHN G., 1724 Pine St. (19103)	S
1964.	HANES, ROBERT B., Ashby Rd. & Chestnut St., Upper Darby, Pa. (19082)	PUL
1963.	HANHAUSEN, EDWARD H., 418 E. Lancaster Ave., Wayne, Pa. (19087)	OPH
1950.	HANSEN, A. VICTOR, 910 Centennial Rd., Penn Valley, Narberth, Pa. (19072)	P
1970.	HARDESTY, WILLIAM H., 433 Bellevue Ave., Trenton, N.J. (08607)	S
1951.	HARKINS, HERBERT P., Suite 122 Lankenau Hosp. Med. Bldg. (19151)	ALR
1971.	HARLEY, ROBISON D., 1601 Spring Garden St. (19130)	OPH Pd
1966.	HARNER, RICHARD N., Graduate Hospital (19146)	N
1962.	HARRIS, JAMES R., 330 S. 9th St. (19107)	P
1959.	HARRIS, JAMES S. C., Medical Office Bldg., 666 E. Penn St. (19144)	S TS
1948.	HARRIS, T. N., 5112 Woodbine Ave. (19131)	RES
1973.	HARTZELL, D. JEFFREY, 60 Merbrook Bend, Merion, Pa. (19066)	FP
1961.	HARVIE, FRED H., 20 E. Newfield Way, Bala Cynwyd, Pa. (19004)	Pd
1972.	HARWICK, ROBERT D., 2201 Benjamin Franklin Parkway (19103)	S
1935.	*HASKELL, BENJAMIN F., 1427 Spruce St. (19102)	PR
1968.	HASKIN, MARVIN E., 509 Spruce St. (19106)	R
1958.	HAUPT, GEORGE J., Lankenau Medical Bldg. (19151)	S TS
1960.	HAUSMAN, DAVID H., Pennsylvania Hospital, 8th & Spruce Sts. (19107)	PATH
1947.	HAVENS, WALTER PAUL, JR., 139 Cheswold Lane, Haverford, Pa. (19040)	I
1947.	*HAWTHORNE, HERBERT R., 3625 Darby Rd., Bryn Mawr, Pa. (19010)	S
1963.	HAYES, MERRILL B., 608 University Place, Swarthmore, Pa. (19081)	ALR
1952.	HAYLLAR, BENJAMIN L., Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)	U
1961.	HAYWARD, MALCOLM L., 560 Maplewood Rd., Wayne, Pa. (19087)	P
1961.	HEATH, FREDERICK K., 230 N. Broad St. (19102)	I
1972.	HEATON, CHARLES L., Duhring Labs., 3400 Spruce St. (19104)	D FP
1957.	HEDGES, THOMAS R., JR., Pine Bldg., Penn. Hosp., 8th & Spruce Sts. (19107)	OPH
1961.	HEGGESTAD, GILMAN E., 207 Bryn Mawr Bldg., Bryn Mawr, Pa. (19010)	S
1965.	HEINE, WILLIAM I., 5579 N. Park Ave. (19141)	C I
1967.	HELWIG, JOHN, JR., Germantown Hosp. (19144)	C I
1972.	HENDERSON, THEODORE A., 500 Willow Ave., Ambler, Pa. (19002)	C
1944.	HERBUT, PETER A., Dept. of Pathology, Jefferson Medical College Hospital (19107)	PATH
1973.	HERMANN, GEORGE A., 51 N. 39th St. (19104)	PATH NUC
1971.	HERMEL, MORTIMER B., 255 S. 17th St. (19103)	R
1954.	HERRON, JAMES R., 1055 Haddon Ave., Collingwood, N.J. (08108)	OBG
1963.	HESCH, JOSEPH A., Box 62, Avalon, N.J. (08202)	Pd
1949.	HEYL, W. MEREDITH, 1107 Bethelhem Pike, Flourtown, Pa. (19031)	OBG
1961.	HILFERTY, DANIEL J., JR., Apt. D-3 Mayflower Apts., 922 Montgomery Ave., Bryn Mawr, Pa. (19010)	I
1952.	HINKSON DEHAVEN, 329 N. 40th St. (19104)	G
1972.	HIPPLE, JAMES W., 202 W. State St., Trenton, N.J. (08608)	DDS
1973.	HIPPLE, WILLIAM P., 202 W. State St., Trenton, N.J. (08608)	DDS
1924.	HIRST, JOHN C., 2d., 2016 Rittenhouse Sq. (19103)	OBG
1944.	HNELSKI, IGNATIUS S., 802 S. 48th St. (19143)	C I
1943.	HOCKADAY, AGNES, 316 Shadeland Ave., Drexel Hill, Pa. (19026)	FP
1947.	*HODGES, JOHN H., 1025 Walnut St. (19107)	I HEMA
1963.	HOFFMAN, CARL J., 2901 Cottman Ave. (19149)	PN
1948.	HOFFMAN, GEORGE L., JR., 133 S. 36th St. (19104)	OBG
1965.	HOLFELNER, EDWARD D., Chestnut St. & Ashby Road, Upper Darby, Pa. (19082)	U

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1964.	HOLLANDER, GEORGE, 3500 Vista St. (19136)	C I
1949.	HOLLANDER, JOSEPH L., 206 Maloney Bldg., 36th & Spruce Sts. (19104)	I ARTH
1964.	HOLLING, HERBERT E., 957 Gates Bldg., 3400 Spruce St. (19104)	C
1951.	HOLLIS, CHARLES B., The Cambridge Apts. (19144)	ENT
1952.	HOLLOWAY, EDWARD E., 1736 Pine St. (19103)	C I
1966.	HOLLY, ROY G., 1025 Walnut St. (19107)	OBG
1971.	HOOPER, WILLIAM E., Bristol Hosp., Bristol, Conn. (06010)	I
1953.	HORAN, CHARLES A., Marple Newtown Med. Center, Radnor Dr. and West Chester Pike, Newtown Square, Pa. (19073)	C I
1946.	HORAN, GERALD W., Marple-Newton Medical Bldg., Newton Square, Pa. (19073)	OPH
1947.	*HORWITZ, ORVILLE, Pennsylvania Hosp., 8th & Spruce Sts. (19107)	I
1973.	HOSTEN, EDWARD B., 7600 Central Ave. (19111)	P
1950.	HOULIHAN, CARL T., 819 Gatemore Rd., Bryn Mawr, Pa. (19010)	ENT
1944.	HOUSEL, EDMUND L., 255 S. 17th St. (19103)	I
1964.	HOWELL, DORIS A., 3300 Henry Ave. (19129)	Pd
1951.	HUBBARD, JOHN P., 3930 Chestnut St. (19104)	Pd PH
1947.	*HUBER, JOHN FRANKLIN, Tavple University School of Medicine (19140)	Adm ANAT
1973.	HUGHES, EUGENE P., 8815 Germantown Ave. (19118)	S
1937.	HUGHES, JOSEPH, 111 N. 49th St. (19139)	P
1939.	HUGHES, P. BOLAND, 419 Hillbrook Rd., Bryn Mawr, Pa. (19010)	U S
1968.	HUME, H. ALAN, 3 E. Ridley Ave., Ridley Park, Pa. (19078)	S
1968.	HUMMELER, KLAUS, Children's Hosp., 34th & Civic Center Blvd. (19104)	PATH
1951.	HUNDLEY, J. WARREN, 600 Oxford Rd., Bala-Cynwyd,Pa. (19004)	I
1946.	HUNT, WILLIAM T., JR., 513 Parkview Dr., Wynnewood, Pa. (19096)	OPH
1974.	HUNTER, JAMES M., 243 S. 10th St. (19107)	OR
1921.	HUNTER, ROBERT JOHN, 928 N. 63rd St. (19151)	ALR
1974.	HURLEY, HARRY J., 39 Copley Rd., Upper Darby, Pa. (19073)	D
1967.	HUTH, EDWARD, J., American College of Physicians, 4200 Pine St. (19104)	I
1952.	HYMAN, HAROLD L., 3401 N. Broad St. (19140)	I
1950.	*IMBRIGLIA, JOSEPH E., 934 Cedar Grove, Wynnewood, Pa. (19096)	PATH
1973.	INGAGLIO, PHILIP E., 1838 S. Broad St. (19145)	FP
1949.	INGRAHAM, NORMAN R., JR., 9440 Stenton Ave. (19118)	PH
1957.	ISAACSON, HOWARD, 7348 Drexel Road, (19151)	OBG
1951.	ISARD, HAROLD J., Albert Einstein Medical Center, York & Tabor Rds. (19141)	R
1951.	*ISRAEL, HAROLD L., 1825 Pine St. (19103)	PUL
1973.	JACOBI, ATHOLE G. MCNEIL, Med. Coll. of Penna., 3300 Henry Ave. (19129)	ANES
1967.	JACOBY, JAY J., 1025 Walnut St. (19107)	ANES
1967.	JAEGER, EDWARD A., Media Clinic, Media, Pa. (19063)	OPH
1974.	JAFEK, BRUCE W., Graduate Hospital (19146)	ALR
1965.	JENKINS, B. WHELLER, 8351 Limekiln Pike, Wyncote, Pa. (19095)	FP
1943.	JOHNSON, JULIAN, 31 Righters Mill Rd., Gladwyne, Pa. (19035)	S
1938.	JOHNSON, THOMAS A., 135 S. 18th St. (19103)	I GE
1972.	JOHNSTON, DUDLEY E., 3800 Spruce St. (19104)	DVM
1963.	JONES, ROBERT E., 111 N. 49th St. (19139)	P
1967.	JONES, W. MEAD, Somerset House, Fort Washington, Pa. (19034)	OPH
1966.	*JOYCE, JOHN J., III, Medical Office Bldg., 666 E. Penn St. (19144)	OR
1936.	KAIN, THOMAS M., 3025 W. Chapel Ave., Cherry Hill, N.J. (08034)	I
1969.	KAIN, THOMAS M., JR., Cooper Parkway, W., Suite 301 N. Park Dr., Pennsauken, N.J. (08109)	I C
1948.	KAPLAN, LOUIS, 2040 Pine St. (19103)	S
1964.	*KAPLAN, S. RICHARD, 419 S. 19th St. (19146)	OR
1974.	KARP, LOUIS A., 51 N. 39th St. (19104)	OPH
1970.	KASHATUS, WILLIAM C., 1036 Bloomfield Ave. (19115)	PATH
1958.	KASSER, MAX D., 101 S. 20th St. (19103)	OPH
1970.	KASTOR, JOHN A., HUP, 942 Gates Bldg., 3400 Spruce St. (19104)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1971.	KATOWITZ, JAMES A., 1930 Chestnut St. (19103)	OPH
1945.	KATZ, G. HENRY, 111 N. 49th St. (19139)	P
1941.	KAUFFMAN, M. LUTHER, Medical Arts Bldg., Jenkintown, Pa. (19046)	OPH
1947.	KAY, CALVIN FREDERICK, 4200 Pine St. (19104)	C
1954.	KAYE, ROBERT, 230 N. Broad St. (19102)	Pd
1972.	KEAN, HERBERT, 255 S. 17th St. (19103)	ALR
1968.	KEATES, EDWIN U., Suite 204, 1 Abington Plaza, York Rd. and Township Line, Jenkintown, Pa. (19046)	OPH
1947.	KEEFER, GEORGE PFAHLER, 136S. 16th St. (19102)	R
1970.	KEELER, LOUIS L., JR., 1055 Haddon Ave., Collingwood, N.J. (08108)	U
1963.	KEELEY, FRANCIS X., 501 Haddon Ave., Haddonfield, N.J. (08033)	I
1966.	KEENEY, ARTHUR H., 715 Alta Vista Rd., Louisville, Ky. (40206)	OPH
1972.	KEENEY, VIRGINIA T., 715 Alta Vista Rd., Louisville, Ky. (40206)	OPH
1949.	KEISERMAN, JOSEPH, 1900 John F. Kennedy Blvd. (19103)	I
1965.	KELLOW, WILLIAM F. T., 1025 Walnut St. (19107)	I
1932.	*KELLY, HERBERT T., 1830 Delancey Place (19103)	I
1961.	KELLY, WILLIAM E., 111 N. 49th St. (19139)	P
1941.	KENNEDY, PATRICK J., 32 Hampden Rd., Upper Darby, Pa. (19082)	OPH
1948.	KERN, FRANKLIN MOORE, 903 Nicholson Rd., Wynnewood, Pa. (19096)	OBG
1921.	*KERN, RICHARD A., Temple University Hospital, 3401 N. Broad St. (19140)	I A
1974.	KESSLER, WOODROW B., Nob Hill, Hillview Rd., R.D.#2, Malvern, Pa. (19355)	END
1935.	KEYES, BALDWIN L., 2031 Locust St. (19103)	PN
1971.	KIMBEL, PHILIP, Albert Einstein Medical Center (N) (19141)	I PUL
1936.	KING, ORVILLE S., 330 S. 9th St. (19107)	S
1970.	KING, WARREN E., JR., 760 Washington Lane, Jenkintown, Pa. (19046)	ANES
1973.	KIRKPATRICK, JOHN A., 537 Manor Rd., Wynnewood, Pa. (19096)	Pd R
1952.	KIRSCHNER, JACOB J., 1930 Chestnut St. (19103)	I PUL
1974.	KIRSHBAUM, BERNARD A., D-128 Madison House, Presidential Apts. (19131)	D
1969.	KISSICK, WILLIAM L., Dept. Community Med., 36th & Hamilton Walk (19104)	PrM
1960.	KITCHELL, J. RODERICK, Abington Hospital Medical Office Bldg., 1245 Highland Ave., Abington, Pa. (19001)	C
1954.	KLIGMAN, ALBERT M., 10 Duhring Lab. 36th & Spruce Sts. (19104)	D
1934.	KLINE, ORAM R., 896 Lake Ave., Woodbury Hts., N.J. (08097)	ALR
1959.	KLINE, ORAM R., JR., 406 Cooper St., Camden, N.J. (08102)	OPH
1948.	KLINGENSMITH, PAUL O., Suite 307, Wynnewood House, 300 E. Lancaster Ave., Wynnewood, Pa. (19096)	OBG
1958.	KLINGENSMITH, WALTER C. Suite 307, Wynnewood House, 300 E. Lancaster Ave., Wynnewood, Pa. (19096)	I
1956.	KLINGHOFFER, JUNE F., Med. Coll. of Penna., 3300 Henry Ave. (19129)	I
1969.	KLINGHOFFER, LEONARD, 255 S. 17th St. (19103)	OR
1960.	KNOPF, CARL L., 2225 Garrett Rd., Drexel Hill, Pa. (19026)	OBG
1960.	KNORR, JOHN K., 3rd, Lankenau Medical Bldg. (19151)	OBG
1959.	KNOWLES, HARRY J., 722 Righters Mill Rd., Narberth, Pa. (19072)	S
1973.	KOBLENZER, CAROLINE S., 159 Warren St., Edgewater Park, N.J. (08010)	D
1969.	KOBLENZER, PETER J., 303 Chester Ave., Moorestown, N.J. (08057)	Pd D
1973.	KOELLE, WINIFRED A., 205 College Ave., Swarthmore, Pa. (19081)	I
1959.	KOIWAI, EICHI KARL, 235 N. 15th St. (19102)	PATH
1973.	KOLLER, HAROLD P., Suite 217–19 Barclay Pav., E. Cherry Hill, N.J. (08034)	OPH
1973.	KOLLMANN, GEORGE J., York & Tabor Rds. (19141)	PhD BioC NUC
1957.	KOLTES, JOHN A., 530 Spring Lane (19128)	P
1936.	KONZELMANN, FRANK WILLIAMSON, 27 W. Wilmont Ave., Somers Point, N.J. (08244)	PATH
1949.	*KOOP, C. EVERETT, Children's Hosp., 34th & Civic Center Blvd. (19104)	S Pd
1964.	KOPPEL, MAX M., 7310 Castor Ave. (19115)	U
1972.	KOPROWSKA, IRENA, 3401 N. Broad St. (19140)	PATH
1972.	KOPROWSKI, HILARY, Wistar Inst., 36th & Spruce Sts (19104)	RES Micro

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1972.	KOTIN, PAUL, 3420 N. Broad St. (19140)	PATH
1971.	KOZART, DAVID M., 1930 Chestnut St. (19103)	OPH
1972.	KRAFT, ALBERT J., JR., 5 E. Chestnut Hill Ave. (19118)	I
1941.	KRALL, J. THOMAS, 85 N. Lansdowne Ave., Lansdowne, Pa. (19050)	S
1973.	KRAMER, JANET P., 10 Davon G., Wilmington, Del. (19810)	Pd
1954.	*KRASNOFF, SIDNEY O., Tabor Medical Bldg., York & Tabor Roads (19141)	C I
1952.	*KRAVITZ, CHARLES H., 626 Ashbourne Rd., Elkins Park, Pa. (19117)	I
1973.	KREHL, WILLARD A., 1025 Walnut St. (19107)	I BioC
1964.	KREMENS, VICTOR, 5601 N. Broad St. (19141)	R
1974.	KREMER, HOWARD U., 419 S. 19th St. (19146)	I
1949.	KRESSLER, ROBERT J., 330 S. 9th St. (19107)	Pd
1968.	KRISHNA, NARENDRA, 584 E. Chestnut St., Coatesville, Pa. (19320)	OPH
1973.	*KRYSTON, LEONARD J., 230 N. Broad St. (19102)	END
1947.	KUHLENBECK, HARTWIG, 3300 Henry Ave. (19139)	ANAT
1964.	KUSTRUP, JOHN F., 1418 S. Broad St., Trenton, N.J. (08610)	S
1967.	KYLE, GEORGE C., 212 Maloney Bldg., 3400 Spruce St. (19104)	I
1947.	LA BOCCETTA, ALFRED CHARLES, Chester City Health Dept., 326 N. Walnut St., W. Chester, Pa. (19380)	PRM PH
1952.	*LACHMAN, JOHN W., 3401 N. Broad St. (19104)	OR
1973.	LAIBSON, PETER R., 1601 Spring Garden St. (19130)	OPH
1946.	LAMPE, WILLIAM T., 4207 Tyson Ave. (19135)	I
1962.	LANDIS, HARRY P., JR., 901 Columbia Ave., Palmyra, N.J. (08065)	OPH
1952.	*LANG, WARREN R., Suite 1624, 1919 Chestnut St. (19103)	OBG PATH
1966.	LANGFITT, THOMAS W., 210 White Bldg., 3600 Spruce St. (19104)	NS
1941.	LANGNER, PAUL H., JR., 1208 Edmonds Ave., Drexel Hill, Pa. (19026)	C I
1945.	LANSBURY, JOHN, 3414 Brae Bourn Drive, Huntingdon Valley, Pa. (19006)	I
1974.	LAVAN, DONALD W., Suite 705, 255 S. 17th St. (19103)	I
1926.	LAWS, GEORGE M., 1907 Spruce St. (19103)	G
1967.	LEAR, WALTER J., 206 N. 35th St. (19104)	PH
1950.	LEARNER, NORMAN, 3401 N. Broad St. (19140)	I
1920.	LEAVITT, FREDERICK HEADLEY, 1527 Pine St. (19102)	PN
1941.	LEBERMAN PAUL R., 1 W. Gates Bldg., Hospital of the University of Pennsylvania (19104)	U
1957.	LEE, CHARLES TRUMBULL, JR., 33 E. Chestnut Hill Ave. (19118)	I
1971.	LEE, K. FRANCIS, 1025 Walnut St. (19107)	R
1952.	*LEHMAN, J. STAUFFER, 3911 Central Ave., Ocean City N.J. (08226)	R
1961.	LEIBFRIED, JANE M., 5501 Green St. (19144)	OBG
1974.	LEIGHTON, JOSEPH, 3300 Henry Ave. (19129)	PATH
1951.	LEIVY, FRANK E., Wm. Penn House, 1919 Chestnut St. (19103)	I
1944.	LELL, WILLIAM A., 503 Auburn Ave. (19118)	ALR
1974.	LEMMON, WILLIAM M., 1320 Race St. (19107)	C TS
1935.	‡LEMMON, WILLIAM T., 1509 Sweet Briar Rd., Gladwyne, Pa. (19035)	S
1973.	LEMOLE, GERALD M., Temple Health Sciences Cntr. (19140)	TS
1969.	LENTZ, JOHN W., 417 Lankenau Med. Bldg., Lancaster & City Line Ave. (19151)	D
1965.	LEOPOLD, HOWARD C., Briar House A-12 York and Meetinghouse Rds. (19117)	I A
1955.	LEOPOLD, ROBERT L., Dept. Community Med., U of P, 36th & Hamilton Walk (19104)	P
1967.	LESLIE, W. MUNROE, 8800 Germantown Ave. (19118)	FP
1969.	LETO, FRANCESCO, 1419 S. Broad St. (19147)	I
1944.	LETTIERE, ANTHONY J., 425 E. State St., Trenton, N.J. (08069)	S
1970.	LEUTE, MILLARD S., INA, 1600 Arch St. (19101)	OM INS
1965.	LEVENSON, CARL, 619 Elkins Ave. (19117)	PM
1959.	LEVICK, LEONARD J., Suite 309, 1335 Tabor Rd. (19141)	I ONC

‡ Deceased, September 1, 1974.

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1971.	Levin, Harvey M., 2301 S. Broad St. (19148)	OBG
1958.	Levine, Samuel, 7100 N. 19th St. (19126)	S
1964.	Levit, Editiie J., 3930 Chestnut St. (19104)	Adm
1964.	Levit, Samuel M., 1910 Spruce St. (19103)	CH
1973.	Levy, Edwin J., 85 N. Lansdowne Ave., Lansdowne, Pa. (19050)	D
1972.	Levy, Walter M., St. Agnes Hosp., 1900 S. Broad St. (19125)	OR
1958.	LeWinn, Edward B., Upper Black Eddy, Pa. (18972)	I
1960.	*Lewis, George C., Jr., 230 N. Broad St. (19102)	OBG
1967.	Lewis, Stuart H., 2050 W. Chester Ave., Havertown, Pa. (19083)	OR
1967.	Liachowitz, Claire H., Presidential Apts. (19131)	PM
1955.	Liberman, George E., 1900 Spruce St. (19103)	ALR
1971.	Lieberman, Daniel, 1127 Walnut St. (19107)	P
1970.	Liebman, Emil P., 2106 Spruce St. (19103)	ALR
1968.	Lief, Harold I., 2d Floor, 4025 Chestnut St. (19104)	P
1969.	Lightfoot, William P., Temple Univ. Hosp. (19140)	S
1956.	Likoff, William, 20 Conshohocken Rd., Bala-Cynwyd, Pa. (19004)	I C
1962.	Lilley, George W., Scott Paper Co. (19113)	I OM
1940.	Limberger, William A., 301 S. Church St., West Chester, Pa. (19380)	I
1966.	Lin, Paul M., The Benson, Suite 123, Jenkintown, Pa. (19046)	S
1956.	Lindquist, John N., 422 Sabine Ave., Wynnewood, Pa. (19096)	I
1972.	Linnemann, Roger E., 3508 Market St. (19104)	R
1936.	Lintgen, Charles, 1930 Chestnut St. (19103)	OBG
1958.	Lipshultz, Arthur, Willow Grove Ave. & Crittenden St. (19118)	Pd PdA
1959.	*Lipshultz, Herbert, 829 Spruce St. (19107)	PL
1953.	Lipsius, Edward I., 319 S. 16th St. (19103)	OPH
1974.	Lischner, Harold W., St. Christopher's Hosp. for Children (19133)	Pd
1959.	Little, Ralph B., 111 N. 49th St. (19139)	P
1944.	Livesey, Mary M., 1201 Bethlehem Pike, Flourtown, Pa. (19031)	I C
1933.	Long, Esmond R., Society Hill Towers, 23B, 220 Locust St. (19106)	PATH
1951.	Long, Joseph P., 1930 Chestnut St. (19103)	OBG
1935.	Long, William L., Fitler & Milnor Sts. (19114)	PN
1973.	Longo, Santo, 310 W. Pine Ave., Kane, Pa. (16735)	PATH
1951.	Lorber, Stanley H., Temple Univ. Hospital, 3401 N. Broad St. (19140)	I GE
1961.	Lorry, Ralph W., 1247 E. Luzerne St. (19124)	S
1960.	Lovett, B. Frank, North Park Drive & Airport Highway, Pennsauken, N.J. (08109)	OBG
1974.	Lowry, Louis D., Dept. OTO, HUP, 3400 Spruce St. (19104)	ALR
1963.	Lubowitz, Richard M., 1245 Highland Ave., Abington, Pa. (19001)	OBG
1967.	Luce, Cyril M., 102 W. Frong St., Media, Pa. (19063)	OPH
1970.	Lucente, Edward R., 1907 S. Broad St. (19148)	OBG
1972.	Lucier, Alfred C., 30 Hampden Road, Upper Darby, Pa. (19082)	OPH
1939.	Luongo, Romeo A., 2054 Locust St. (19103)	ALR
1951.	Luscombe, Herbert A., 136 S. 16th St. (19102)	D
1952.	Lutman, Frack C., 33 E. Chestnut Hill Ave. (19118)	OPH
1919.	Lynch, Frank B., Jr., 809 Cambridge Apts., School House Lane (19144)	PATH
1950.	Lynch, J. Edward, Mercy Catholic Medical Center, Medical Sciences Bldg., Darby, Pa. (19023)	OBG
1953.	Lyons, John W., 255 S. 17th St. (19103)	P
1973.	McAfoos, Louis G., Jr., S. Jersey Med. Cntr., Rt. 70, Cherry Hill, N.J. (08034)	I
1965.	McCabe, James L., Jr., Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)	I
1932.	*McCahey, James F., Wesley Manor, Jacksonville, Fla. (32223)	U S
1958.	*McClenahan, John L., 39 East Chestnut Hill Ave. (19118)	R
1973.	McCloskey, Richard V., York & Tabor Rds. (19141)	I
1957.	McConnell, Edward L., Jr., 2342 S. Broad St. (19145)	OBG
1934.	McCouch, Grayson P., R.D. #4, W. Chester, Pa. (19380)	NP RES

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1962.	McCracken, Stewart, 33 E. Chestnut Hill Ave. (19118)	I
1938.	McCrea, Lowrain E., 933 Remington Rd., Wynnewood, Pa. (19096)	U
1958.	McCune, Wallace G., Germantown Hosp., 666 E. Penn St. (19144)	I
1942.	McDonald P. Robb, Suite 105, Lankenau Medical Bldg. (19151)	OPH
1953.	McDonnell, William V., West Jersey Hospital, Camden, N.J. (08104)	PATH
1952.	McElroy, Robert C., 133 S. 36th St. (19104)	OBG
1970.	McFadden, John F., 102 Wooden Bridge, Holland, Pa. (18966)	I C
1950.	McFadden, William M., 1187 E. Washington Lane (19138)	Pd
1971.	McGarry, Thomas F., 9301 Frankford Ave. (19114)	I C
1949.	McGavic, John S., 1104 Montgomery Ave., Rosemont, Pa. (19010)	OPH
1970.	McGeary, Joseph D., 111 N. Broad St. (19107)	INS
1945.	McGee, Lemuel Clyde, Box 3879, Greenville, Wilmington, Del. (19807)	I
1954.	McGehee, Edward H., 1025 Walnut St. (19107)	I HEMA
1952.	McGlade, Thomas H., 514 Cooper St., Camden, N.J. (08102)	ALR
1966.	McGrath, Raymond J., 6400 Dicks St. (19142)	ALR
1933.	McLaughlin, James S., 1443 Cayuga St. (19140)	I A
1966.	McMichael, Harrison, 524 Meadowbrook Circle, Wayne, Pa. (19087)	PATH
1924.	McMillan, Thomas M., 2451 Mt. Island Drive, North, Mobile, Ala. (36606)	I
1955.	McStravog, Lawrence J., 5057 Sylvia Rd., Drexel Hill, Pa. (19026)	ALR
1954.	MacFadyen, Bruce V., 1801 J. F. Kennedy Blvd. (19103)	G
1964.	Macht, Elmer L., Jr., York & Keith Roads, Abington, Pa. (19001)	OBG
1974.	Mackie, Julius A., 1000 Ravdin Bldg., Hosp. of Univ. of Penna., 3400 Spruce St. (19104)	S
1973.	MacVaugh, Horace, III, 7145 Lafayette Ave., Fort Washington, Pa. (19034)	TS
1955.	Macy, Dorothy, 5616 N. 45th St., Phoenix, Ariz. (85018)	I
1957.	Madow, Leo, 3300 Henry Ave. (19129)	P N
1970.	Magee, John T., Bryn Mawr Hosp., Bryn Mawr, Pa. (19010)	I Adm
1967.	Magee, Joseph H., 330 N. Princeton Ave., Swarthmore, Pa. (19081)	I
1966.	Maguire, Henry C., Jr., 7701 Burholme Ave., Fox Chase, Pa. (19111)	D
1952.	Mahoney, J. Francis, 324 Ingeborg Road (19151)	R
1969.	Mahood, William H., 1245 Highland Ave., Abington, Pa. (19001)	GE I
1970.	Maier, Willis P., 3401 N. Broad St. (19140)	S
1972.	Makous, Norman, 330 S. 9th St. (19107)	I
1969.	Mallin, Aaaron W., Rittenhouse Med. Center, 1900 Spruce St. (19103)	PN
1965.	Mancall, Elliott L., 216 N. Broad St. (19102)	N
1959.	Mandel, Martin M., Benson Manor, Township Line & Washington Lane, Jenkintown, Pa. (19046)	N
1968.	Mandell, Morton S., 1319 W. Tabor Rd. (19141)	I C
1966.	Manges, W. Bosley, 255 S. 17th St. (19103)	S
1954.	Manges, Willis E., 431 Barclay Rd., Rosemont, Pa. (19010)	R
1971.	Manko, Michael A., Lancaster & City Line (19151)	I
1970.	Manley, Donelson R., Wills Eye Hospital (19130)	OPH
1949.	Manlove, Francis R., 500 Williamson Rd., Gladwyne, Pa. (19035)	I
1960.	Manning, Valentine R., 336 Aldine St. (19136)	PL
1956.	Manstein, George, 1351 Tabor Rd. (19141)	S PL
1969.	Mansure, Frank T., 4601 Market St. (19139)	I INS
1969.	Mansure, Patricia R., Penn Central R. R. Med. Office, 30th St. Station (19104)	I
1953.	Marbach, A. Herbert, 1307 Tabor Rd. (19141)	OBG
1948.	*Marden, Philip Ayer, 113 Maloney Bldg., University Hospital, 36th & Spruce Sts. (19104)	ALR
1958.	Marino, Daniel J., Crozer-Chester Med. Center, 15th and Upland Ave., Chester, Pa. (19013)	I
1966.	Markind, Simon, Mercy Hosp., Auburn, N.Y. (13021)	PM
1969.	Marks, Gerald, 255 S. 17th St. (19103)	S PR
1973.	Marlowe, Frank I., 1920 Chestnut St. (19103)	ALR

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1972.	MARSHAK, ROBERT R., Univ. Penna. Sch. Vet. Med., New Bolton Cntr., Kennett Square, Pa. (19438)	DVM
1950.	MARSHALL, E. WAYNE, 907 Pine St. (19107)	I PUL
1968.	MARTIN, JOHN H., 3401 N. Broad St. (19140)	I RHEUM
1972.	MARTIN, SAMUEL P., III, Dept. Community Med. HUP (19104)	I
1951.	*MARTIN, WILLIAM L., 402 Holly Lane, Wynnewood, Pa. (19096)	S
1953.	MARX, HALVEY E., 76 Brennan Drive, Bryn Mawr, Pa. (19010)	PATH
1970.	MASON, DANIEL, 1333 Race St. (19107)	I C
1972.	MASTRANGELO, MICHAEL J., Amer. Oncologic Hosp., Central & Shelmire Aves. (19104)	I
1966.	MASTROIANNI, LUIGI, JR., 106 Dulles Bldg., University Hospital (19104)	OBG
1968.	MAUSNER, JUDITH S., The Medical College of Pennsylvania (19129)	PrM
1951.	MAYOCK, ROBERT L., 214 Maloney Bldg., 3600 Spruce St. (19104)	PUL
1958.	MAYS, RALPH WHITEMAN, 666 E. Penn St. (19144)	I C
1961.	MECHANICK, PHILIP, 215 Cynwyd Rd., Bala-Cynwyd, Pa. (19004)	P
1951.	MEDINGER, FREDERICK G., 1245 Highland Ave., Abington, Pa. (19001)	S ONC
1959.	MEDOFF, JOSEPH, Two Decker Sq., 22–24 City Ave. & Decker Blvd., Bala-Cynwyd, Pa. (19004)	I GE
1973.	MALCHODE, GERALD A., 314 N. Broad St. (19102)	P
1941.	MENDELL, THEODORE H., Suite 1603, 1930 Chestnut St. (19103)	I
1943.	MERANZE, DAVID R., 229 W. Upsal St. (19119)	PATH
1955.	MERVINE, THOMAS B., Medical Arts Bldg., Woodbury, N. J. (08096)	S
1959.	METZGER, HARRY N., 1815 Pine St. (19103)	I GE
1964.	MEYER, EDWARD C., Fitzgerald Mercy Pospital, Darby, Pa. (19023)	S TS
1973.	MEYERS, KARL R., Philadelphia General Hospital (19104)	PATH
1972.	MICHAELSON, THOMAS C., R.D. 2, Bartlett Lane, Chester Springs, Pa. (19425)	I
1964.	MICHAILE, KENNETH L., Suite 603, 1930 Chestnut St. (19103)	OPH
1971.	MICHON, CATHERINE A., 702 N. White Horse Pike & Wright Ave., Stratford, N.J. (08084)	OPH
1973.	MILLER, ARTHUR S., 3223 N. Broad St. (19140)	DDS
1956.	MILLER, BERNARD JOSEPH, Medical Office Bldg., 666 E. Penn St. (19144)	S
1974.	MILLER, JEROME, 1930 Pine St. (19103)	A
1939.	MILLER, MALCOLM W., Lankenau Medical Bldg. (19151)	I A
1921.	*MILLER, T. GRIER, 133 S. 36th St. (19104)	I
1955.	MILLER, WILLIAM H., Fitzgerald Mercy Hospital, Darby, Pa. (19023)	PATH
1952.	*MINTZ, S. S., 1930 Chestnut St. (19103)	I C
1963.	MISHKIN, MARK M., Gr. fl. Dulles Bldg., Univ. of Pa. Hospital (19104)	R
1952.	MITCHELL, ROBERT MCNAIR, 807 Spruce St. (19107)	OBG
1959.	*MITTERLING, ROBERT C., Chestnut St. & Glendale Rd., Upper Darby, Pa. (19082)	I
1967.	MONHEIT, RICHARD S., Heart Station, Albert Einstein Medical Center, N.D. (19141)	I
1970.	MONTGOMERY, BRUCE B., 1930 Chestnut St. (19103)	OBG
1936?	MONTGOMERY, HUGH, 932 Merion Sq. Rd., Gladwyne, Pa. (19035)	I
1936.	*MONTGOMERY, JOHN B., 1930 Chestnut St. (19103)	OBG
1932.	MONTGOMERY, THADDEUS L., 2031 Locust St. (19103)	OBG
1935.	*MOORE, JOHN ROYAL, 3701 N. Broad St. (19140)	OR
1947.	MOORE, MATTHEW THIBAUD, 1813 Delancey Pl. (19103)	PN
1958.	MOORE, SAMUEL R., JR., 1600 Arch St. (19101)	INS
1972.	MORAN, JOHN F., JR., 506 Walnut St. (19105)	OM
1958.	MORANI, ALMA D., 3665 Midvale Ave. (19129)	S PL
1945.	MORRIS, I. PAUL, 1939 W. Cheltenham Ave. (19117)	Pd
1969.	MORRIS, ROBERT G., JR., R.D. #4, Shadow Brook, Tunkhannock, Pa. (18657)	R
1972.	MORSE, PETER H., Scheie Inst., 51 N. 39th St. (19104)	OPH
1967.	MOSS, N. HENRY, N. Medical Bldg., 1335–49 W. Tabor Rd. (19141)	S
1964.	MOST, WILLIAM, 994 Haddon Ave., Collingswood, N.J. (08108)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1959.	MOYER, JOHN H., 230 N. Broad St. (19102)	I
1941.	*MUCKLÉ, CRAIG WRIGHT, 1200 Spring Mill Rd., Villanova, Pa. (19085)	G
1973.	MUDD, EMILY HARTSHORNE, 734 Millbrook Lane, Haverford, Pa. (19041)	PhD
1929.	MUDD, STUART, 734 Millbrook Lane, Haverford, Pa. (19041)	RES
1960.	MULBERGER, ROBERT D., 1930 Chestnut St. (19103)	OPH
1965.	MULLER, OTTO, Fitzgerald-Mercy Hospital, Darby, Pa. (19023)	I C
1968.	MURPHEY, HENRY S., 3810 Oak Rd. (19129)	Adm ALR
1958.	MURPHY, JOHN J., Suite W-310, 3400 Spruce St. (19104)	U S
1955.	MURTAGH, FREDERICK, JR., 3401 N. Broad St. (19140)	NS
1972.	MURTO, ROBERT E., 433 Bellevue Ave., Trenton, N.J. (08618)	GPH
1973.	MYERS, ALLEN R., 210 Maloney HUP, 3600 Spruce St. (19104)	ARTH
1951.	MYERS, DAVID, The Philadelphian, 2401 Pennsylvania Ave. (19130)	ALR
1969.	MYERS, EUGENE N., Univ. of Pittsburgh, Dept. OTO, Pittsburgh, Pa. (15213)	ALR
1965.	MYERS, RICHARD N., 307 Lankenau Medical Bldg. (19151)	S
1955.	NACHOD, GRACE R., 5501 Greene St. (19144)	OPH
1968.	NADEN, RANDALL S., JR., 130 N. Broadway, Camden, N.J. (08102)	I C
1968.	NAGEL, FRANK O., JR., 37 S. 20th St. (19103)	OPH
1973.	NAIDE, DAVID, 2034 Spruce St. (19104)	C
1945.	NAIDE, MEYER, 2034 Spruce St. (19103)	I
1951.	NAIDOFF, DAVID, 3500 Tudor St. (19136)	OPH
1973.	NAIDOFF, MICHAEL A., Suite 945, 1617 J. F. Kennedy Blvd. (19103)	OPH
1972.	NAKHJAVAN, FRED K., York & Tabor Rds. (19141)	I C
1966.	NANCE, MAURICE R., 1500 Spring Garden St. (19101)	Adm PHARM RES
1950.	NARDONE, ANTHONY A., 438 Glendale Circle, Springfield, Pa. (19064)	OBG
1959.	NEAL, HUNTER S., 460 Lankenau Medical Bldg. (19151)	S TS
1974.	NEALIS, HENRY J., Suite 202, Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	OPH
1972.	NELSON, HARRY M., JR., 1308 DeKalb St., Norristown, Pa. (19401)	S
1943.	NELSON, WALDO E., 615 Moreno Rd., Narberth, Pa. (19072)	Pd
1955.	*NEMIR, PAUL, JR., 19th & Lombard Sts. (19146)	S TS
1971.	NEVYAS, HERBERT J., Suite 701, 1930 Chestnut St. (19103)	OPH
1970.	NICASTRO, GENNARO C., 3018 N. 25th St. (19132)	ALR
1970.	NICHOLAS, LESLIE, 1521 Locust St. (19102)	D
1935.	*NICHOLSON, JESSE THOMPSON, 419 S. 19th St. (19146)	OR
1960.	NICHOLSON JOHN W., III, 150 Schooley St., Moorestown, N.J. (08057)	OR
1973.	NOBLE PAUL H., 829 Spruce St. (19107)	S
1947.	NOONE, ERNEST L., R.D. #2, Box 336, Elverson, Chester Co., Pa. (19520)	Pd
1973.	NOONE, R. BARRETT, 888 Glenbrook Ave., Bryn Mawr, Pa. (19010)	S
1954.	NORRIS, CHARLES M., 3401 N. Broad St. (19140)	Pd
1938.	*NORRIS, ROBERT F., 430 Colebrook Lane, Bryn Mawr, Pa. (19010)	P
1971.	OAKEY, RICHARD S., JR., 419 E. 22nd St., Chester, Pa. (19013)	PL
1973.	OAKS, WILBUR W., 230 N. Broad St. (19102)	C
1973.	O'BRIEN, JOAN A., 930 Paper Mill Rd. (19118)	DVM
1972.	O'CONNELL, WILLIAM A., 8708 Germantown Ave. (19118)	OBG
1971.	OELS, HELEN C., Box 146 A, Sumneytown, Pa. (18084)	PATH
1963.	O'HARA, A. EDWARD, Jefferson Medical College Hospital (19107)	R
1973.	OLEN, ELSE, 247 St. Joseph's Way (19106)	PATH
1954.	OLSEN, AXEL K., 245 N. 15th St. (19102)	NS
1949.	*O'NEILL, JAMES F., 1425 Woddland Rd., Rydal, Pa. (19046)	S TS
1947.	ORNSTEEN, A. M., 2007 Delancey Pl. (19103)	PN
1973.	OSTRUM, BERNARD J., Radiology Associates, Einstein Med. Center, York and Tabor Rds. (19141)	R
1958.	O'SULLIVAN, WARD D., Mercy Cath. Med. Center, Fitzgerald Mercy Hosp., Darby, Pa. (19023)	S
1955.	OTTENBERG, DONALD J., Eagleville Hosp., Eagleville, Pa. (19408)	I
1970.	OTTENBERG, PERRY, 111 N. 49th St. (19139)	P

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1961.	Owen, Barbara J., Bryn Mawr Hospital, Bryn Mawr, Pa. (19010)	PATH
1949.	*Padis, Nicholas, Lankenau Medical Bldg. (19151)	I
1968.	Padula, Richard T., 1025 Walnut St. (19107)	S TS
1963.	Parish, Benjamin D., Jr., 1261 Bethlehem Pike, Flourtown, Pa. (19031)	REH
1972.	Parish, Lawrence C., Suite 724, 1601 Walnut St. (19102)	D
1945.	Park, Felix Roman, 1980 Utica Sq., Tulsa, Okla. (74114)	I
1973.	Parr, Justin L., 230 N. Broad St. (19102)	PATH
1974.	Pasquariello, Patrick J., Children's Hosp. (19146)	Pd
1972.	Patterson, Donald F., 11 S. Providence Rd. Wallingtord, Pa. (19086)	DVM DSc
1952.	Paxson, Newlin F., 245 N. Broad St. (19107)	OBG
1932.	Payne, Franklin L., 240 Beech Hill Road, Wynnewood, Pa. (19096)	OBG
1954.	Pearce, Alexander E., 1420 Race St. (19102)	S
1958.	Pearce, Rowan C., Jr., 30 Washington Ave., Haddonfield, N.J. (08033)	ALR
1965.	Pearlstine, Beatrice, 6219 N. 11th St. (19141)	I GE
1954.	Pearson, Manuel M., 111 49th St. (19139)	P
1967.	Pechin, Sergius P., 3001-B Garrett Rd., Drexel Hill, Pa. (19026)	S
1930.	*Pendergrass, Eugene P., Radiology Dept., University Hospital, 3400 Spruce St. (19104)	R
1953.	Penneys, Raymond, 230 N. Broad St. (19102)	I
1973.	Perloff, Milton M., 2923 W. Cheltenham Ave. (19150)	FP
1964.	Perrin, George M., First Floor Mills Bldg., Philadelphia General Hospital, 34th & Curie Ave. (19104)	P
1940.	Pessel, Johannes F., 224 West State St., Trenton, N.J. (08608)	I GE
1952.	Peters, Michael, Fairhill Rd., Hatfield, Pa. (19440)	C
1968.	Peterson, Arthur L., 111 N. 49th St. (19139)	P Adm
1940.	Pettit, Horace, 123 Kennedy Lane, Bryn Mawr, Pa. (19010)	A
1949.	*Pettit, Mary DeWitt, 3300 Henry Ave. (19129)	OBG
1946.	Pfeiffer, Mildred C. J., 358 Valley Rd., Merion, Pa. (19066)	Adm
1935.	Phillips, Arthur W., Emlenton, Pa. (16373)	P
1961.	Phillips, William A., 60 Meadowbrook Dr., Princeton, N.J. (08540)	P
1948.	Pierson, Daniel B., Jr., 740 Beacon Lane, Merion, Pa. (19066)	I
1964.	Pierucci, Louis, Jr., Suite 303 Cooper Parkway West, N. Park Drive, Pennsauken, N.J. (08109)	S
1961.	Pike, Anne H., Suite L-11 Stafford House, 5555 Wissahickon Ave. (19144)	OBG
1957.	*Pilling, George Platt, IV, 2600 N. Lawrence St. (19133)	S Pd
1933.	*Pillsbury, Donald M., 1019 Great Springs Rd., Rosemont, Pa. (19010)	D
1957.	Platt, Ruth M., 441 Lyceum Ave. (19128)	FP
1951.	Poinsard, Paul J., 2123 Delancey Place (19103)	P
1968.	Polin, Edward B., 7810 Old York Rd. (19117)	I
1937.	Polk, David Stewart, 1330 Montgomery Ave., Rosemont, Pa. (19010)	Pd
1967.	Polk, Lewis D., 540 Municipal Services Bldg. (19107)	Pd PrM
1974.	Pollack, Howard M., 531 Ashmead Rd., Cheltenham, Pa. (19021)	R
1974.	Pollak, Otto, 1020 Wynoon Ave., Bryn Mawr, Pa. (19010)	PhD
1956.	*Pontarelli, Domenic J., 1037 Great Springs Rd., Rosemont, Pa. (19010)	OBG
1953.	Porreca, George A., 1843 S. Broad St. (19148)	OBG
1932.	Porter, Roland De Lance, 3301 N.E. 5th Ave., Apt. 1205, Miami, Florida (33137)	OBG S
1951.	Pote, Harry H., 103 E. Ridley Ave., Ridley Park, Pa. (19078)	I
1958.	Potter, H. Phelps, Jr., Paoli Memorial Hosp., Lincoln Hwy, Paoli, Pa. (19301)	I
1951.	*Pressman, Robert S., 170 W. Olney Ave. (19120)	I
1974.	Preucel, Robert W., 1147 Norsan Rd., Gladwyne, Pa. (19035)	OBG
1965.	Price, Joseph J., 36 Copley Road, Upper Darby, Pa. (19082)	OBG
1947.	Prickett, John A., 1574 Easton Rd., Warrington, Bucks County, Pa. (18976)	R
1931.	Pryor, Charles Allen, Box 164-A, Telford, Pa. (18968)	ALR
1973.	Punnet, Hope H., St. Christopher's Hosp., 2600 N. Lawrence St. (19133)	Pd PhD

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1968.	QUALLS, DONALD M., Lankenau Medical Bldg. (19151)	OR
1971.	QUINN, NORMAN J., 1218 Valley Rd., Villanova, Pa. (19088)	Pd
1972.	RABSON, MOSES, 5609 N. Park Ave. (19141)	OR
1973.	RACHMAN, RAYMOND, 1429 S. 5th St. (19147)	PATH
1943.	*RADBILL, SAMUEL X, 7043 Elmwood Ave. (19142)	Pd
1966.	RAFFENSPERGER, BRUCE W., 400 Bellaire Ave., Fort Washington, Pa. (19034)	OBG
1953.	RAFFENSPERGER, EDWARD C., 290 St. James Place (19106)	GE
1945.	RAKOFF, ABRAHAM EDWARD, Apt. 601, 250 S. 18th St. (19103)	G
1953.	RALSTON, EDGAR L., 110 Maloney Bldg., 3400 Spruce St. (19104)	OR
1931.	RAMSEY, FRANK M., Lakeside Dr., Rt. 1, Mayfield, N.Y. (12117)	
1968.	RANDALL, PETER, 1000 Ravdin Bldg., Univ. of Pa. Hosp. (19104)	PL
1953.	RANIERI, TITO A., 2320 S. Broad St. (19145)	S
1941.	RANKIN, CHARLES A., Ludlow & Heather Rd., Upper Darby, Pa. (19083)	OPH
1968.	RASHKIND, WILLIAM L., Children's Hosp. of Phila., 34th and Civic Center Blvd. (19104)	Pd PdC
1951.	*RATHMELL, THOMAS K., 446 Bellevue Ave., Trenton, N.J. (08618)	PATH
1969.	RAWNSLEY, HOWARD M., 713 Maloney Bldg., HUP, 3400 Spruce St. (19104)	PATH
1962.	RAYMOND, F. DOUGLAS, JR., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	I
1964.	RAYMOND, SAMUEL, Pepper Laboratory, 711 Maloney Bldg., University Hospital, 36th & Spruce Sts. (19104)	PATH
1961.	READ, WILLIAM T., JR., 110 Munn Lane, Cherry Hill, N.J. (08034)	PATH
1954.	*REAGAN, LINDLEY B., 414 Edgemount Dr., Moorestown, N.J. (08057)	S
1965.	REDDY, JOHN B., 331 S. 9th St. (19107)	ALR OPH
1960.	REED, THEODORE P., Lankenau Medical Bldg. (19151)	OBG
1928.	REESE, WARREN S., 2118 Locust St. (19103)	OPH
1971.	REIDENBERG, MARCUS M., 3420 N. Broad St. (19140)	I
1964.	REINHARD, JOHN J., JR., 335 Woodstown Road, Salem, N.J. (08079)	S TS
1956.	REISHTEIN, WILLIAM A., 287 Wyoming Ave., Kingston, Pa. (18704)	OBG
1963.	REISINGER, PAUL B., 855 Berkeley Ave., Trenton, N.J. (08618)	S OR
1970.	REIVICH, MARTIN, Dept. Neurology, HUP, 3400 Spruce St. (19104)	N
1969.	RELMAN, ARNOLD S., 570 Maloney Bldg 3400 Spruce St. (19104)	I
1974.	RENTHAL, A. GERALD, Dept. Community Med., Univ. Penna. (19174)	R
1972.	RESNICK, EDWARD J., 3401 N. Broad St. (19140)	OR
1973.	RESNICK, MYRON E., Del. County Med. Center, Lawrence Park Shopping Center, Broomall, Pa. (19008)	I C
1968.	REX, EUGENE B., Lankenau Medical Bldg. (19151)	ALR
1974.	REYNOLDS, MONICA, Unionville Rd., R.D. #4, W. Chester, Pa. (19380)	PhD
1945.	*RHOADS, JONATHAN E., 1000 Ravdin Bldg., Univ. of Pa. Hospital (19104)	S
1964.	RHOADS, REBECCA M. P., 3374 Orange St., Hollywood, Florida (33021)	OPH PrM
1963.	RIAL, WILLIAM Y., 111 Dartmouth Ave., Swarthmore, Pa. (19081)	PrM
1971.	RICHMAN, MORTON W., 10101 Academy Rd. (19114)	OPH
1974.	RICKELS, KARL, 1518 Sweetbriar Rd., Gladwyne, Pa. (19035)	P
1974.	RIPPLE, PAUL H., 558 N. Duke St., Lancaster, Pa. (17601)	OPH
1936.	RITTER, JOSEPH A., 1034 Bryn Mawr Ave., Narberth, Pa. (19072)	Pd
1954.	ROBERTS, BROOKE, 1000 Ravdin Bldg., 3400 Spruce St. (19104)	S
1957.	ROBERTS, JOAN MARY, 4 W. Mt. Pleasant Ave. (19119)	OBG
1968.	ROBERTS, JOHN M., 8815 Germantown Ave. (19118)	S
1964.	ROBINSON, JAMES H., 5900 Spruce St. (19139)	S
1969.	ROBINSON, NATHANIEL M., 5229 Spruce St. (19139)	I
1969.	RODGERS, ROBERT A., JR., Westwood Med. Center, King's Hwy. & Westwood Dr., Woodbury, N.J. (08096)	OBG
1960.	ROEDER, PAUL H., Haverford Ave. & Westwood Lane, Overbrook Hills, Pa. (19051)	OBG
1969.	ROEDIGER, PAUL M., 1245 Highland Ave., Abington, Pa. (19001)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1955.	*Rogers, Fred B., 3401 N. Broad St. (19140)	I
1971.	Rominger, C. Jules, Radiology Dept., 5301 Cedar Ave. (19143)	R
1951.	*Ronis, Bernard J., 2106 Spruce St. (19103)	ALR
1971.	Ronis, Mac Lee, 2106 Spruce St. (19103)	ALR
1971.	Rorke, Lucy B., 120 Chestnut St., Moorestown, N.J. (08057)	PATH
1973.	Rosato, Ernest F., 750 Darby-Paoli Rd., Newtown Sq., Pa. (19073)	S
1969.	Rosato, Francis E., 1000 Ravdin Bldg., 3400 Spruce St. (19104)	S
1948.	Roscoe, Constantine R., 7226 Castor Ave. (19124)	Pd
1973.	Rose, Catharine S., PGH, 3400 Civic Cntr. Blvd. (19104)	BioC PhD
1928.	Rose, Edward, 426 Owen Rd., Wynnewood, Pa. (19096)	I
1936.	Rose, Elizabeth Kirk, 426 Owen Rd., Wynnewood, Pa. (19096)	Pd PH
1959.	Rose, Isadore, 6000 W. Oxford St. (19151)	I
1946.	*Rosemond, George Parrott, 3401 N. Broad St. (19140)	S
1972.	Rosenbaum, Jerry L., York and Tabor Rds. (19141)	I
1965.	Rosenberg, Hyman, 1555 Haddon Ave., Camden, N.J. (08103)	I
1974.	Rosenfeld, Philip A., 1245 Highland Ave., Abington, Pa. (19001)	ALR
1960.	Rosenow, Edward C., Jr., American College of Physicians, 4200 Pine St. (19104)	I
1948.	Rothman, Maurice M., Kennedy House, Bay Terrace Apt. 14E, 1250 West Ave., Miami, Fla. (33139)	GE
1951.	Rouse, George P., Jr., 2031 Locust St. (19103)	I
1966.	Rovner, Harold, 1930 Chestnut St. (19103)	S PR
1952.	Roxby, Bruce S., Temple Univ. Health Services, Broad and Montgomery Sts. (19122)	I
1955.	Roxby, John B., Jr., 215 Vassar Ave., Swarthmore, Pa. (19081)	I D
1949.	Royster, Henry P., 888 Glenbrook Ave., Bryn Mawr, Pa. (19010)	S
1959.	Rubin, Alan, 1905 Spruce St. (19103)	OBG
1952.	Rubin, I. Edward, 255 S. 17th St. (19103)	OPH
1966.	Rugart, Karl F., Penna. Hosp., 8th & Spruce Sts. (19107)	OBG
1947.	Rush, Alexander, 330 S. 9th St. (19107)	GE I
1971.	Rutberg, Franklin L., Stafford House, Wissahickon & Chelten Ave. (19144)	ALR
1963.	Rutter, William A., 425 Wister Rd., Wynnewood, Pa. (19096)	P
1945.	Rynes, Samuel E., 334 S. 21st St. (19103)	A
1965.	Sachs, Marvin L., 3400 Spruce St. (19104)	I
1952.	Sain, Fletcher D., 1245 Highland Ave., Abington, Pa. (19001)	S
1970.	Salim, Bozorgmehr, 651 Spallbank Lane, Rosemont, Pa. (19010)	P
1952.	Salner, Nathan P., 6812 Castor Ave. (19124)	R
1952.	Saltzman, Maurice, 2037 Spruce St. (19103)	ALR
1966.	Samitz, M. H., 1715 Pine St. (19103)	D
1944.	Sampson, David Alan, 726 Braeburn Lane, Penn Valley, Narberth, Pa. (19072)	R
1974.	Sandzen, Sigurd C., Jr., 1137 York Road, Abington, Pa. (19001)	OR
1964.	Santangelo, Samuel C., 1941 Woodland Road, Abington, Pa. (19001)	OR
1972.	Santore, Felice J., 108 Lankenau Med. Bldg. (19151)	ALR
1968.	Sarin, Lov K., Lankenau Med. Bldg. (19151)	OPH
1950.	Sarner, Joseph B., 289 Locust St. (19106)	PR
1967.	Sattilaro, Anthony J., Apt. 2708, Wm. Penn House, 1919 Chestnut St. (19103)	ANES
1954.	Savacool, J. Woodrow, 146 W. Tulpehocken St. (19144)	I PUL
1947.	Sayen, John J., 534 Johnson Pav., HUP, 3600 Spruce St. (19104)	I C
1969.	Schaedler, Russell W., Jefferson Med. College (19107)	Adm RES
1971.	Schamberg, Ira L., 646 Washington Lane, Jenkintown, Pa. (19046)	D
1942.	*Scheie, Harold G., Scheie Eye Inst., 51 N. 39th St. (19104)	OPH
1929.	Schenck, Harry P., 1235 Wyngate Rd., Wynnewood, Pa. (19096)	ALR
1966.	Schless, Guy L., 330 South Ninth St. (19107)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1945.	SCHLEZINGER, NATHAN S., 255 S. 17th St. (19103)	PN
1961.	SCHLOSSER, WOODROW D., The Philadelphian, 2401 Pennsylvania Ave. (19130)	ALR
1971.	SCHMIDT, WILLIAM C., 223 Lancaster Ave., Devon, Pa. (19333)	FP
1958.	SCHNABEL, TRUMAN G., JR., VA Hosp., University & Woodland Ave. (19104)	I
1957.	SCHNALL, NATHAN, 7310 Castor Ave. (19152)	OBG
1962.	SCHNEIDER, HENRY C., 4801 Penn St. (19124)	PR
1973.	SCHOR, STANLEY, 536 Cedar Drive, Lafayette Hill, Pa. (19044)	PhD
1970.	SCHOTT, CLIFFORD E., JR., Misericordia Hosp. (19143)	I C
1968.	SCHOTZ, SEYMOUR, 51 N. 39th St. (19104)	ANES
1955.	SCHREADER, CHARLES J., 8906 Atlantic Ave., Margate City, N.J. (08402)	C
1952.	SCHULZ, NORBERT J., 107 W. Front St., Media, Pa. (19063)	S
1950.	SCHUMANN, FRANCIS, 8815 Germantown Ave. (19118)	S
1971.	SCHWARTZ, GORDON F., 1025 Walnut St. (19107)	S
1974.	SCHWARTZMAN, ROBERT M., 14 Wiltshire Rd. (19151)	PhD DVM PH
1948.	SCHWARZ, GABRIEL A., 3001 B Garrett Rd., Drexel Hill, Pa. (19026)	N P
1962.	SCHWARZ, HENRY P., Philadelphia General Hospital (19104)	PATH
1955.	SCHWEGMAN, CLETUS W., 1000 Ravdin Bldg., Hospital of the University of Penna. (19104)	S
1973.	SCIMECA, HENRY A., 88 Crestview Dr., Willingboro, N.J. (08046)	ALR
1973.	SCOTT, DWIGHT B. MCNAIR, Rm. 148, Univ. Penna. (19104)	Bio C
1966.	SCOTT, J. CLIFFORD, RFD #2, Box 215, Malvern, Pa. (19355)	P
1930.	SCOTT, JOHN PORTER, Children's Hospital (19104)	Pd
1950.	SCOTT, MICHAEL, 3401 N. Broad St. (19140)	NS PN
1940.	SCOTT, T. F. MCNAIR, 401 S. Taney St. (19146)	Pd
1974.	SELLER, ROBERT H., 230 N. Broad St. (19102)	I FP
1958.	SELLERS, ALFRED M., 357 Gates Bldg., Hosp. of the Univ. of Pa. (19104)	I C
1968.	SENIOR, JOHN R., 54 Merbrook Lane, Merion Station, Pa. (19066)	GE
1969.	SEWELL, EDWARD M., 314 W. Carpenter Lane (19119)	Pd
1973.	SEYDEL, H. GUNTER, 1790 Old Welsh Rd., Huntington Valley, Pa. (19006)	R
1967.	SEYLER, RAYMOND Q., 1600 Arch St. (19101)	INS
1972.	SHAFFER, FRANK W., 1605 W. Main St., Norristown, Pa. (19401)	RES P Pd
1973.	SHAPIRO, BERNARD, 417 Hidden River Rd., Penn Valley, Narberth, Pa. (19072)	RES NUC
1960.	*SHANNON, GERARD M., 8118 Bustleton Ave. (19115)	OPH
1963.	SHARPLES, WYNNE, 454 S. Ithan Ave., Villanova, Pa. (19085)	RES
1956.	SHAW, DANIEL L., JR., 702 Knox Rd., Villanova, Pa. (19085)	RES
1963.	*SHEARBURN, EDWIN W., 306 Lankenau Medical Bldg. (19151)	S
1954.	SHELLEY, WALTER B., 34 Duhring Lab., HUP, 36th & Spruce Sts. (19104)	D
1955.	SHENKIN, HENRY A., Episcopal Hospital (19125)	NS
1968.	SHERK, HENRY H., 2647 West Field Ave., Camden, N.J. (08105)	OR
1968.	SHERRY, SOL, Temple Univ. Health Center (19140)	I
1956.	SHERSON, JACOB S., 405 Meadow Lane, Merion Station, Pa. (19066)	PUL
1974.	SHERWOOD, WILLIAM C., 23d and Chestnut Sts. (19103)	HEMA I
1958.	SHIPPS, HAMMELL P., Route 130 & New Albany Rd., Cinnaminson, N.J. (08077)	G
1957.	SHOPE, EDWARD PIERCE LENTZ, One Centennial Sq. Bldg., Haddonfield, N.J. (08033)	OPH
1946.	SHOUP, GEORGE DANIEL, 121 W. Walnut Lane (19144)	U
1973.	SHRAGER, MORTON W., 133 S. 36th St. (19104)	C
1955.	*SHUBIN, HARRY, 1829 Pine St. (19103)	I Adm
1952.	SHUMAN, CHARLES R., 3401 N. Broad St. (19140)	I
1949.	SIDLICK, DAVID M., Park Towne Place E., 2200 Benj. Franklin Pkway. (19130)	D
1969.	SILBERBERG, DONALD H., Gr. fl. Gibson Bldg., Univ. of Pa. Hosp. (19104)	N
1941.	*SILCOX, LOUIS E., Lankenau Medical Bldg. (19151)	ALR
1956.	*SILLARS, CHARLES H., Abington Memorial Hospital, Abington, Pa. (19001)	R
1968.	SILVERIO, JOHN, Wyeth Labs., P.O. Box 8299 (19101)	Pd

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1955.	SILVERSTEIN, ALEXANDER, 1829 Pine St. (19103)	PN
1971.	SILVERSTEIN, HERBERT, 1849 A. Hawthorn St., Sarasota, Fla. (33579)	ALR
1967.	SIMENHOFF, MICHAEL L., 1025 Walnut St. (19107)	I
1961.	SIMMONS, VAUGHAN P., Colonial Penn Life Ins. Co., 5 Penn Center (19103)	I INS
1954.	SINGMASTER, LAWRENCE, 272 Cheswold Lane, Haverford, Pa. (19041)	S
1952.	SKROMAK, STANLEY J., 5108 Torresdale Ave. (19124)	I
1969.	SKVERSKY, NORMAN J., 6910 Castor Ave. (19149)	I
1967.	SLOANE, NORMAN G., 255 S. 17th St. (19103)	I
1929.	SMITH, AUSTIN T., Box 28, 382 Lakeside Rd., Wynnewood, Pa. (19096)	ALR
1964.	SMITH, EDGAR C., 7100 Marshall Road, Upper Darby, Pa. (19082)	I
1967.	SMITH, KAIGHN, Lankenau Medical Bldg. (19151)	OBG
1933.	SMITH, LAUREN HOWE, 111 N. 49th St. (19139)	P
1967.	SMITH, ROBERT R., William H. Rorer, Inc., 500 Virginia Drive, Fort Washington, Pa. (19034)	PHARM
1973.	SMULLENS, STANTON N., 130 S. 9th St. (19107)	C S
1964.	SMYTH, MURRAY G., JR., 1710 Delancey Place (19103)	R
1951.	SNAPE, WILLIAM J., Raban Bldg., 807 Haddon Ave., Haddonfield, N.J. (08033)	GE
1972.	SNOW, JAMES B., JR., 630 Gates Bldg., 3400 Spruce St. (19104)	ALR
1966.	SNOW, LAUREN E. H., 3300 Henry Ave. (19129)	P
1974.	SNYDER, RALPH E., 9 Davis Rd., Ambler, Pa. (19002)	FP I
1958.	SODEMAN, WILLIAM A., 3473 Kingsgate Blvd., Toledo, Ohio (43606)	I C
1961.	SOFFE, ALVIN M., 1930 Chestnut St. (19103)	I C
1935.	SOKOLOFF, MARTIN J., 255 S. 17th St. (19103)	PUL
1971.	SOLIT, ROBERT W., 829 Spruce St. (19107)	S TS
1964.	SOLL, DAVID B., 5001 Frankford Ave. (19124)	OPH
1944.	SOMMER, GEORGE N. J., JR., 120 W. State St., Trenton, N.J. (08608)	TS
1952.	SONES, MAURICE, 7156 Germantown Ave. (19119)	I
1951.	SONNEBORN, DUANE G., 1200 W. Erie Ave. (19124)	I
1972.	SORICELLI, DAVID A., 511 S. Broad St. (19146)	DDS
1974.	SOUSER, ROSLYN C., Suite 110, Bryn Mawr Med. Bldg. (19010)	S
1928.	*SPAETH, EDMUND B., 1930 Chestnut St. (19103)	OPH PL
1966.	SPAETH, GEORGE L., 1601 Spring Garden St. (19130)	OPH
1958.	SPAETH, PHILIP G., 1930 Chestnut St. (19103)	OPH
1971.	SPAGNA, PASCHAL M., Front & Lehigh Ave. (19125)	S TS
1974.	SPANN, JAMES F., Cardiology, 3401 N. Broad St. (19140)	I C
1972.	SPAULDING, EARLE H., Dept. Microbiology, 3401 N. Broad St. (19140)	PhD
1935.	SPIEGEL, ERNEST A., 6807 Lawnton Ave. (19126)	N
1961.	*SPIEGELMAN, JAY, Benson East Apt., Jenkintown, Pa. (19046)	A
1955.	SPITZ, EUGENE B., 32 S. Morton Ave., Morton, Pa. (19070)	NS
1958.	SPLENDIDO, JOSEPH A., 608 W. Cliveden St. (19119)	I C
1961.	STAHLGREN, LEROY H., Episcopal Hospital, Front & Lehigh Ave. (19125)	S
1960.	STAINBACK, WILLIAM C., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	S
1957.	STANLEY, ROBERT C. G., 2315 Edgemont Rd., Chester, Pa. (19013)	OBG
1968.	STAPINSKI, STANLEY M., 80 W. Main St., Glen Lyon, Pa. (18617)	I
1927.	STARR, ISAAC, 505 Cresheim Valley Rd. (19118)	C
1952.	STAYMAN, JOSEPH W., JR., 8815 Germantown Ave. (19118)	S TS
1945.	STECHER, H. ARMIN, 1510 Darby Rd., Havertown, Pa. (19083)	FP PUL
1955.	STEEL, HOWARD H., 1526 Mt. Pleasant Rd., Villanova, Pa. (19085)	OR
1964.	STEIN, DONALD B., JR., 3000 Robin Lane, Havertown, Pa. (19083)	PATH
1946.	STEIN, IRVIN, 1936 Spruce St. (19103)	OR
1953.	STEIN, RAYMOND O., 269 S. 19th St. (19103)	OR
1966.	STEIN, SAMUEL C., 5450 Wissahickon Ave. (19144)	I PUL
1973.	STEINBERG, STANFORD M., 2206 Delancey St. (19103)	I
1968.	STEINMETZ, CHARLES G., III, 4606 Spruce St. (19139)	OPH
1951.	STERLING, JULIAN A., 3505 S. Ocean Drive, Hollywood, Fla. (33020)	S
1972.	STETZER, JOHN J., Bryn Mawr Med. Bldg iBryn Mawr, Pa. (19010)	DDS

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1948.	STEVENS, LLOYD W., Presbyterian-Univ. of Pa. Med. Center Bldg. Suite 301, 3910 Powelton Ave. (19104)	S
1973.	STOFMAN, HENRY C., 1900 Spruce St. (19103)	S
1967.	STOOL, SYLVAN E., Children's Hosp. of Phila., 34th and Civic Center Blvd. (19104)	ALR
1968.	STOREY, PATRICK B., Graduate Hosp., 19th & Lombard St. (19146)	I
1961.	STRANG, JOHN E., 864 County Line Rd., Bryn Mawr, Pa. (19010)	I
1973.	STRAUSS, RICHARD E., 765 Arden Rd., Jenkintown, Pa. (19046)	D
1953.	STROUD, MORRIS W., 1175 Birmingham Rd, RD #5, West Chester, Pa. (19380)	I
1960.	*STRUMIA, PAUL V., Bryn Mawr Hospital, Bryn Mawr, Pa. (19010)	PATH
1973.	STUPNIKER, SONIA, 1104 Valley Rj iMelrose Park, Pa. (19141)	A
1951.	*STURGIS, KATHARINE BOUCOT, 349 Wister Rd., Wynnewood, Pa. (19096)	PUL PrM
1927.	STURGIS, SAMUEL BOOTH, 349 Wsiter Rd., Wynnewood, Pa. (19096)	FP
1971.	SUGIURA, HENRY T., 51 N. 39th St. (19104)	PATH
1966.	*SULLIVAN, HOWARD E., JR., Bryn Mawr Medical Bldg., Bryn Mawr, Pa. (19010)	I
1930.	SUNDERMAN, F. WILLIAM, 1833 Delancey Place (19103)	I CP
1954.	*SUSSMAN, MARCEL S., Wm. Penn House, 1919 Chestnut St. (19103)	OBG
1963.	SUTLIFF, FREDERICK P., 1125 Woodbine Ave., Narberth, Pa. (19072)	OPH
1965.	SUTNICK, ALTON I., 2135 St. James Place (19103)	I
1968.	SWEENEY, FRANCIS J., JR., Jefferson Med. College, 1025 Walnut St. (19107)	I
1972.	SWETERLITSCH, PAUL R., Suite 301, 1245 Highland Ave., Abington, Pa. (19001)	OR
1971.	SYMS, CHARLES A., 1246 E. Cheltenham Ave. (19124)	I
1952.	TALBOT, TIMOTHY R., JR., 204 Booth Lane, Haverford, Pa. (19041)	I HEMA
1973.	TASHJIAN, LEVON D., 111 N. 49th St. (19139)	P N
1963.	TASSMAN, WILLIAM S., 187 E. Evergreen Ave. (19118)	OPH
1946.	TAUBER, ROBERT, 1600 Providence Blvd., Deltona, Florida (32763)	G
1952.	TAYLOR, ANN GRAY, 515 W. Chelten Ave. (19144)	OB
1960.	TAYLOR, DANIEL B., 2241 Federal St. (19146)	U
1969.	TAYLOR, W. J. RUSSELL, PGH, 34th and Curie Ave. (19104)	PHARM
1973.	TEMPLETON, BRYCE, 213 Hardwicke Lane, Villanova, Pa. (19085)	P
1956.	TEMPLETON, JOHN Y., III, 829 Spruce St. (19107)	S TS
1966.	TEPLICK, JOSEPH G., 419 N. Sterling Rd. (19117)	R
1966.	TERRY, LUTHER L., Suite 2100, 465 L'Enfant Plaza West, Washington, D.C. (20024)	Adm
1951.	THEODOS, PETER A., 1930 Chestnut St. (19103)	PUL
1972.	THIESSEN, JOOP W., 3508 Market St. (19104)	R
1959.	THOMAS, ARTHUR H., 5240 Vine St. (19139)	S
1946.	THOMAS, CARMEN C., 1930 Chestnut St. (19103)	D
1946.	THOMAS, JOHN W., 5900 Spruce St. (19139)	S
1970.	‡THOMPKINS, LEONARD J., Misericordia Hospital (19143)	PATH
1952.	THOMPSON, CHARLES M., 428 Penn Valley Rd., Narberth, Pa. (19072)	I GE
1927.	THORINGTON, J. MONROE, Cambridge Apts., Wissahickon Ave. & School House Lane (19144)	OPH
1973.	THORP, T. RAMSEY, 7014 Clearview St. (19119)	OPH
1967.	THORWARTH, WILLIAM T., 8835 Germantown Ave. (19118)	R
1973.	TICE, LINWOOD F., 322 Morrison Ave., Salem, N.J. (08079)	PhD DSc
1971.	TILLMAN, JOSEPH M., JR., 434 Lindley Avenue (19120)	OPH
1954.	TINDALL, DOROTHY D., 1930 Rittenhouse Sq. (19103)	OPH
1974.	TOBIAS, GORDON, Suite 210, Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)	U
1966.	TOLAND, JOSEPH J., Suite 10, N.E. Med. Center, Roosevelt Blvd. & Welsh Rd. (19114)	OR
1935.	TOLAND, OWEN J., 336 Aubrey Rd., Wynnewood, Pa. (19096)	OBG
1952.	*TONDREAU, RODERICK L., 523 Old Gulph Rd., Bryn Mawr, Pa. (19010)	R NUC
1971.	TORG, JOSEPH S., 3401 N. Broad St. (19140)	OR

* S. Weir Mitchell Associate.

‡ Deceased, October 25, 1974.

ELECTED		SPECIALTY
1949.	TORNAY, ANTHONY S., 2038 Locust St. (19103)	PN
1972.	TORNETTA, FRANK J., Montgomery Hosp., Norristown, Pa. (19401)	ANES
1966.	TORRANCE, EDWARD G., 678 Burmont Rd., Drexel Hill, Pa. (19026)	RES
1968.	TOURTELLOTTE, CHARLES D., 3400 N. Broad St. (19140)	I RHEUM
1936.	TOWSON, CHARLES EMORY, 224 W. Washington Lane (19144)	ALR
1955.	TRIMPI, HOWARD D., 501 N. 17th St., Allentown, Pa. (18104)	PR
1954.	TROMMER, PHILIP R., 258 S. 18th St. (19103)	I ARTH
1956.	TRONCELLITI, MARIO V., Pennsylvania Hospital (19107)	ANES
1953.	TROPEA, FRANK, JR., 500 Mulberry Lane, Haverford, Pa. (19041)	S
1947.	TRUEMAN, ROBERT H., 2101 Chestnut St. (19103)	OPH
1954.	TRUITT, R. MARHSALL, JR., 6400 Wissahickon Ave. (19119)	I
1971.	TUCKER, JOHN A., 216 N. Broad St. (19102)	ALR
1966.	TUCKER, GABRIEL F., JR., 3401 N. Broad St. (19140)	ALR
1959.	TUDDENHAM, WILLIAM J., Pennsylvania Hospital (19107)	R
1938.	TUFT, LOUIS, 1530 Locust St. (19102)	I A
1964.	TULSKY, EMANUEL G., Abington Memorial Hospital, Abington, Pa. (19001)	R NUC
1933.	*TUMEN, HENRY J., 1830 Rittenhouse Square (19103)	I GE
1938.	TURMAN, CHRISTOPHER M., 1245 Highland Ave., Abington, Pa. (19001)	OBG
1959.	TYSON, R. ROBERT, 3401 N. Broad St. (19140)	S
1953.	ULIN, ALEXANDER W., Cedarbrook Hill Apt. B-717, Wyncote, Pa. (19095)	S
1970.	URBACH, FREDERICK, 3322 N. Broad St. (19140)	D
1960.	URICCHIO, JOSEPH F., 245 N. Broad St. (19107)	I
1950.	VALDES-DAPENA, ANTONIO, 214 Plush Mill Rd., Wallingford, Pa. (19086)	PATH
1972.	VALDES-DAPENA, MARIE A., St. Christopher's Hosp. for Children (19133)	PATH
1958.	VAN DEN NOORT, GORDON, 1245 Highland Ave., Abington, Pa. (19001)	NS
1937	VANDER VEER, JOSEPH B., 106 Bryn Mawr Med. Bldg., Bryn Mawr, Pa. (19010)	C
1937.	VAN LOON, EMILY LOIS, 4705 Disston St. (19135)	ALR
1960.	VAN METER, RALPH H., 244 W. Main St., Moorestown, N.J. (08057)	OBG
1933.	*VASTINE, JACOB H., 2nd, 267 Kent Rd., Wynnewood, Pa. (19096)	R
1967.	VAUGHAN, VICTOR C., III, 2600 N. Lawrence St. (19133)	Pd A
1963.	VAUGHAN, ARTHUR R., JR., 5329 Rising Sun Ave. (19120)	OPH
1958.	VELKOFF, CYRIL L., 2100 Walnut St. (19103)	U
1965.	VIGGIANO, LOUIS X., 528 Brandymede Place, Rosemont, Pa. (19010)	OPH
1972.	VINER, EDWARD J., 333 S. 8th St. (19107)	I HEMA
1952.	VISCHER, THOMAS J., 5903 Green St. (19144)	I
1940.	VOEGELIN, ADRIAN W., 3002 Foxx Lane (19144)	OBG
1974.	VUCICEVIC, ZARKO, 500 Chester Pike, Norwood, Pa. (19074)	OPH
1960.	WAGENHEIM, HARRY H., Apt. 1A9, 2401 Pennsylvania Ave. (19130)	P
1974.	WAGENHEIM, HELEN S., 2401 Pennsylvania Ave., #1A9 (19130)	P
1949.	WAGNER, FREDERICK B., JR., 800 Chauncey Road, Narberth, Pa. (19072)	S
1949.	WAGNER, JOSEPH A., 201 Highland Ave., Bryn Mawr, Pa. (19010)	C
1938.	WALDMAN, JOSEPH, 404 Meadowbrook Lane (19118)	OPH
1955.	WALDRON, JEROME M., Evergreen Towers, 8900 Roosevelt Blvd. (19115)	I
1971.	WALKER, BARRY R., P.O. Box 8299 (19101)	I
1967.	WALTZER, FREDERICK N., York & Keith Rds., Abington, Pa. (19001)	OPH
1973.	WATSON, ULYSSES E., 3831 The Oak Road (19129)	P
1969.	WAUGH, BASCOM S., 1882 S. 10th St., Camden, N.J. (08104)	I
1967.	WENDKOS, MARTIN H., Black Hawk Apts., L-16, Lancaster Ave., Downingtown, Pa. (19335)	I
1969.	WEIBEL, ROBERT E., 1001 Pennsylvania Ave., Havertown, Pa. (19083)	Pd
1952.	WEINSTEIN, GEORGE L., 255 S. 17th St. (19103)	OBG
1950.	WEISS, SIDNEY, 2037 Locust St. (19103)	OPH
1965.	WEISS, WILLIAM, 3912 Netherfield Rd. (19129)	PUL
1959.	WELLENBACH, BURTON L., 215 Medical Arts, 1601 Walnut St. (19103)	OBG
1951.	*WELTY, JOHN W., Montgomery Ave. & Owen Rd., Wynnewood, Pa. (19096)	I

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1955.	WENDKOS, MARTIN H., Woodmont North G-13, Downington, Pa. (19335)	I
1962.	WENTZ, CLARKSON, 51 N. 39th St. (19104)	R
1973.	WERTHER, RAYMOND, 1317 Morris Rd., Wynnewood, Pa. (19096)	DDS
1959.	WEST, CLIFTON F., JR., 312 Lankenau Medical Bldg. (19151)	S
1960.	WHITELEY, WILLIAM H., 1015 Chestnut St. (19107)	NS
1969.	WHITMAN, MARK A., McNeil Labs., Camp Hill Rd., Ft. Washington, Pa (19034)	Pd
1973.	WIEDEMAN, MARY P., Temple Health Sciences Cntr. (19140)	PHYS
1954.	WIEDER, HENRY S., JR., 829 Spruce St. (19107)	OR
1939.	*WILLAUER, GEORGE, 6129 Greene St. (19144)	S TS
1969.	WILLIAMS, JAMES R., 700 Polo Road, Bryn Mawr, Pa. (19010)	P
1937.	*WILLIAMS, JOHN C., 512 Auburn Ave., Wyndmoor, Pa. (19118)	OR
1965.	WILLIAMS, KIRKLEY R., Bryn Mawr Md. Bldg., Bryn Mawr, Pa. (19010)	S
1968.	WILLIAMS, NORMAN, Jefferson Med. College (19107)	OM
1950.	WILLIAMS, R. G., 421 Kirk Lane, Media, Pa. (19063)	ANAT
1927.	WILLIAMSON, ERNEST G., 6353 Woodbine Ave. (19151)	S
1945.	WILSON, JOHN F., 2013 Delancey Place (19103)	DS
1949.	WILSON, WILLIAM W., 561 Fairthrone Ave. (19128)	PN
1971.	WINEGRAD, ALBERT, I., Cox Iculitute, Hosp. Univ. Penna. (19104)	I
1957.	WINKLEMAN, N. WILLIAM, JR., 4141 Apalogen Rd. (19144)	PN
1963.	WINSTON, JOSEPH M., Jeanes Hospital (19111)	R
1966.	WISE, JOHN S., 433 Bellevue Ave., Trenton, N.J. (08618)	S
1961.	WISE, ROBERT I., 1025 Walnut St. (19107)	I
1968.	WITKOWSKI, JOSEPH A., 3501 Ryan Ave. (19136)	DS
1953.	WOHL, GEORGE T., Lankenau Hospital (19151)	R
1958.	WOLDOW, IRVING, Einstein Med. Center, York & Tabor Rds. (19141)	I HEMA
1958.	WOLF, JOHN H., 666 E. Penn St. (19144)	S
1944.	WOLF, LEWIS R., 3474 Frankford Ave. (19134)	OPH
1962.	WOLFERTH, CHARLES C., JR., 216 N. Broad St. (19102)	S
1964.	WOLFSON, ROBERT J., Suite 700, 1920 Chestnut St. (19103)	OPH ALR
1964.	*WOLGIN, WILLIAM, 1512 Spruce St. (19102)	U
1957.	WOLKOWICZ, MICHAEL I., 2022 Spruce St. (19103)	OPH
1974.	WOLLMAN, HARRY, 516 Dulles Bldg., Hosp. of Univ. of Penna., 3400 Spruce St. (19104)	ANES
1942.	WOLMAN, IRVING J., 7704 Woodlawn Ave. (19126)	Pd
1972.	WOO, ZUNG-PAH, 8835 Germantown Ave. (11918)	PATH
1966.	WOOD, ALFRED C., JR., 6386 Church Rd. (19151)	P
1932.	*WOOD, FRANCIS C., 216 Maloney Bldg., 3400 Spruce St. (19104)	I
1973.	WOOD, JAMES E., III, 823 Castlefinn Lane, Bryn Mawr, Pa. (19010)	C
1944.	WOOD, H. CURTIS, JR., 7010 Lafayette Ave., Fort Washington, Pa. (19034)	OBG
1966.	WOOD, MARGARET G., 259 Gates W., 3400 Spruce St. (19104)	D
1974.	WOODRUFF, DAVID S., 121 Pennswood Rd., Bryn Mawr, Pa. (19010)	FP
1974.	WOODRUFF, FRIEDA W., 121 Pennswood Rd., Bryn Mawr, Pa. (19010)	FP
1969.	WOUTERS, FREERK W., 864 County Line Rd., Bryn Mawr, Pa. (19010)	P
1960.	WURZEL, HAROLD A., 495 Gibson Bldg., 3400 Spruce St. (19104)	I HEMA
1969.	YANOFF, MYRON, 616 Scheie Inst. 51 N. 39th St. (19104)	OPH PATH
1964.	YOUNG, ALMA L., 3343 W. Penn St. (19129)	OBG
1966.	YOUNG, IRVING, Albert Einstein Medical Center, N.D. (19141)	PATH
1972.	ZACKS, SUMNER I., 807 Spruce St. (19107)	PATH
1967.	ZAKRESKI, MATTHEW J., 8815 Germantown Ave. (19118)	OBG
1973.	ZAMOSTIEN, BERNARD B., 1335 Tabor Road, Suite 303 (19141)	PrM
1961.	ZANNI, ANTHONY L., 111 N. 49th St. (;8;2	P
1957.	ZASLOW, JERRY, 6735 Harbison Ave. (19149)	S
1955.	ZATUCHNI, JACOB, Heart Station, PM Bldg., Episcopal Hosp. (19125)	I C
1946.	ZEIGERMAN, JOSEPH H., 2015 Spruce St. (19103)	OBG
1970.	ZIMMERMANN, ALBERT W., JR., One Plymouth Mtg., Suite 505, Plymouth Mtg., Pa. (19462)	OPH

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1968.	ZIMSKIND, PAUL D., Jefferson Med. College (19107)	U
1949.	ZINTL, WILLIAM J., 1016 Warrior Rd., Drexel Hill, Pa. (19026)	S
1956.	ZISERMAN, ABRAHAM J., 3450 S. Ocean Blvd., Palm Beach, Fla. (33480)	OBG
1962.	ZUBROW, SIDNEY N., 829 Spruce St. (19107)	I
1965.	ZWEIMAN, BURTON, 209 Maloney Bldg., Univ. of Pa. Hospital (19104)	I A

Non-Resident Fellows

1960.	AAINSWORTH, THOMAS H., JR., 836 Wellington Ave., Chicago, Ill. (60657)	S
1941.	ARONSON, ROLAND S., 9401 Byeforde Road, Kensington, Md. (20795)	PATH
1973.	ATKINS, JOSEPH P., JR., U.S. Naval Hosp., Bethesda, Md. (20014)	ALR
1954.	AUSTIN, GEORGE M., Loma Linda Univ. Med. Sch. Hosp., Loma Linda, Calif. (92354)	N S
1942.	BACHMAN, CARL, 1824 Camino Verde Apt. A, Walnut Creek, Calif. (94596)	OBG
1958.	BALLINGER, WALTER F., II, Washington Univ. Sch. of Med., 4960 Audubon Ave., St. Louis, Mo. (63110)	S
1955.	BECKFIELD, WILLIAM J., Luther Hospital, 310 Chestnut St., Eau Claire, Wisconsin (54701)	PATH
1949.	*BEECHAM, CLAYTON T., Geisinger Medical Center, Danville, Pa. (17821)	OBG
1932.	BEHNEY, CHARLES A., Valley House, 5545 East Lee, Tucson, Ariz. (85716)	OBG
1942.	BEHREND, ALBERT, Cyprus Community Hosp., 600 S.W. 3rd St., Pompano Beach, Fla. (30060)	S
1968.	BENENSON, ABRAM S., Univ. of Kentucky College of Med., Lexington, Ky. (40506)	PrM
1970.	BERRY, ROBERT E., Bellevue at Jefferson St., Roanoke, Va. (24014)	S TS
1955.	BLANK, HARVEY, P.O. Bix 875, Miami, Florida (33152)	D
1937.	BRACELAND, FRANCIS J., The Institute of Living, 200 Retreat Ave., Hartford, Conn. (06103)	RES
1936.	BROWN, CLARK E., S. Pamet Rd., Truro, Mass. (02666)	S
1948.	BROWN, ROBERT B., Box 62, Kill Devil Hills, N.C. (27948)	OBG
1952.	BUMGARDNER, HEATH D., 13 S. Main St., Cape May Court House, N.J. (08210)	I
1953.	BURBRIDGE, J. RAYMOND, 163 Nassau St., Princeton, N.J. (08540)	I
1962.	BURNEY, LEROY E., 40 Wall St., N.Y., N.Y. (10005)	PH
1931.	CANTAROW, ABRAHAM, Bldg. 31, Rm. 10A-49, Nat'l Cancer Institute, NIH, Bethesda, Md. (20014)	ND
1948.	CHAPMAN, JOHN P., Calle Fray Junipero Serra 26, Palma de Mallorca, Balearic Islands, Spain	
1950.	CHAPPLE, CHARLES C., 8517 Indian Hills Drive, Omaha, Neb. (68114)	Pd
1941.	CHELEDEN, JOHN, 1012 Volusia Ave., Daytona Beach, Fla. (32014)	PR
1930.	CLARKE, FRANCIS MANN, 116 New St., New Brunswick, N.J. (08901)	S
1964.	COHEN, SHELDON G., NIH, Rm. 710 Westwood Bldg., Bethesda, Md. (20014)	A C
1969.	COLLINS, JAMES A., Geisinger Med. Center, Danville, Pa. (17821)	I
1972.	COPELAND, JAMES E., 4610 9th Place, Vero Beach, Fla. (32960)	OPH
1968.	CORTES, FELIX M., Calle Monserrate E-10, Quintas de la Monserrate Ponce, Puerto Rico (00731)	I C
1959.	COWAN, JOHN S., 535 N. Dearborn St., Chicago, Ill. (60610)	I
1960.	COWLEY, ALLEN W., SR., 1919 N. Front St., Harrisburg, Pa. (17102)	C
1967.	COX, J. WILLIAM, 2906 N. Kensington St., Arlington, Va. (22207)	I C
1968.	CRICHLOW, ROBERT W., Dartmouth College, Hanover, N.H. (03755)	S
1972.	CUMMINGS, NANCY BOUCOT, 2811 35th St., N.W., Washington, D.C. (20007)	NEPH
1941.	CUTTLE, TRACY D., 6066 Wood Drive, Oakland, Calif., (94611)	I
1959.	DANNENBERG, ARTHUR M., JR., Johns Hopkins School of Hygiene, 615 N. Wolfe St., Baltimore, Md. (21205)	PATH
1970.	DAVIS, CHARLES M., JR., 674 W. View Dr., Morgantown, W. Va. (26506)	OR
1937.	DAVIS, PERK LEE, 419 S.E. Third St., Deerfield Beach, Florida (33441)	N

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1947.	DEHNE, THEODORE L., Lake Paupac Club, Greentown, Pa. (18426)	P
1954.	DEITRICK, JOHN E., 69 Rockledge Rd., Bronxville, N.Y. (10708)	I
1965.	DELANEY, WILLIAM E., III, St. Vincent's Hosp., 170 W. 12th St., N.Y.C (10011)	PATH
1968.	DENTON, ROBERT, Univ. Calif. Med. Sch., Davis, Calif. (95616)	ANES Pd
1971.	DEUTSCH, JOEL, Director, Surgery, Mt. Sinai Hosp., 500 Blue Hills Av., Hartford, Conn. (06112)	S
1956.	DIETRICH, HERBERT J., JR., 28 Wytham Village, Oxford Oxz 8QA England	ALR
1941.	DIXON, HAROLD M., R.D. #3, Cold Springs Rd., Indiana, Pa. (15701)	PATH Adm
1962.	DORMAN, PHILIP J., 151 Ridgemont Rd., Grosse Pointe Farms, Mich. (48236)	I
1961.	DUANE, THOMAS D., Bedminster, Pa. (18910)	OPH
1973.	EDELMAN, ELSA B., 415 Gayley St., Apt. 314, Los Angeles, Calif. (90024)	FP
1955.	EDWARDS, MARGARET HAY, 800 4th St., S.W., Washington, D.C. (20024)	I
1953.	EISENBERG, ISADORE J., 2806 Green St., Harrisburg, Pa. (17110)	OPH
1959.	EISENHOWER, JAMES S. D., JR., 2704 Pacific Ave., Wildwood, N.J. (08260)	FP
1949.	ELKINTON, J. RUSSELL, Fairfield-Old Church Rd., Colwall, Malvern, England	
1951.	ELLIS, MACKINNON, Kelkinny, RFD #4, Jonesboro, Tenn. (37659)	
1957.	**ERRION, ARTHUR ROBBINS, 359 Essex St., Salem, Mass. (01970)	I
1951.	ERVIN, CARL E., 1525 Cedar Cliff Dr., Camp Hill, Pa. (17011)	I
1945.	FARRAR, GEORGE E., JR., 528 Scott Rd., Gladwyne, Pa. (19035)	I
1954.	FISCHER, CARL C., 3411 Spanish Trail Apt. C-317, Delray Beach, Fla. (33444)	Pd
1952.	FLINN, LEWIS B., 1306 Broom St., Wilmington, Del. (19806)	I
1964.	FRENCH, GORDON N., Far Hills, N.J. (07931)	I
1940.	FRY, KENNETH E., 621 University St., Walla Walla, Washington (99362)	S PH
1947.	GASKILL, HERBERT S., 480 S. Marion St., Denver, Colo. (80209)	D
1969.	GELLHORN, ALFRED A., 263 W. End Ave., Apt. 19B, N.Y., N.Y. (10023)	Adm
1931.	GILMAN, ROBERT LOUIS, Cheyney, Pa. (19319)	D
1972.	GLAUSER, FELIX E., 50 Eastgate Dr., Camp Hill, Pa. (17011)	S
1968.	GLENNEY, WILTON R., 302 Mahantonga St., Pottsville, Pa. (17901)	I
1954.	GODFREY, ELLWOOD W., Princeton Hospital, Princeton, N.J. (08540)	R
1928.	GORDON, BURGESS L., 1550 Lake Shore Dr., Chicago, Illinois (60610)	I
1968.	GORDY, PHILIP D., 265 Conwell St., Casper, Wyoming (82601)	NS
1966.	GOWEN, GEORGE F., 1630 E. High St., Pottstown, Pa. (19464)	S
1952.	GREENING, ROY R., 801 Broadway, Seattle, Wash. (98104)	R
1955.	GREENSTEIN, RAPHAEL H., 1404 Valley View Dr., Blacksburg, Va. (24060)	I
1952.	GRIECO, REYNOLD M., 2 W. 4th St., Williamsport, Pa. (17701)	PR
1934.	GRIFFITH, JOHN Q., JR., 6 North Fredericksburg Ave., Margate, N.J. (08402)	I
1952.	GROSS, ELMER R., 1102 West St., Wilmington, Del. (19801)	D
1933.	‡GRUBER, CHARLES M., 1313 College Ave., Redlands, Calif. (92373)	RES
1951.	HAFKENSCHIEL, JOSEPH H., JR., 380 Golden Oak Drive, Portola Valley, Calif. (94025)	I
1935.	HAINES, HARLAN F., 231 N. Pine St., Seaford, Del (19973)	I
1959.	HAMPTON, LOUIS J., 300 Highland Ave., Hanover, Pa. (17331)	ANES
1969.	HANSON, STEPHEN M., Lab Service VA Cntr., Wilmington, Del (19805)	PATH
1955.	HARRIS, JOHN H., 1301-A N. Second St., Harrisburg, Pa. (17102)	R
1974.	HARVEY A. MCGEHEE, Johns Hopkins Hosp., Baltimore, Md. (21205)	I
1936.	HATCH, LERLEEN CLEMENT, 7546 E. Mariposa Dr., Scottsdale, Ariz. (85251)	M
1974.	HAYES, ARTHUR H., JR., Milton S. Hershey Med. Center, Hershey, Pa. (17033)	PHARM
1928.	HAYMAN, JOSEPH M., JR., 3504 E. Scarborough Rd., Cleveland Hts., Ohio (44118)	I
1964.	HEATH, ROBERT D., The Geisinger Med. Center, Danville, Pa. (17821)	ALR
1946.	HENDRICKSON, FRANK O., 108 Norfolk Rd., Jupiter, Florida (33458)	I
1933.	HITZROT, LEWIS H., 161 Patton Ave., Princeton, N.J. (08540)	R
1939.	HODES, PHILIP J., 1700 N.W. 10th Ave., Miami, Fla. (33136)	P
1969.	HOLLENDER, MARC H., Vanderbilt Univ. Hosp., Nashville, Tenn. (37203)	P

** Military service.

‡ Deceased, November 19, 1974.

ELECTED		SPECIALTY
1966.	HOLTER, F. ROBERT, 1257 Inspiration Dr., La Jolla, Calif. (92037)	P ChiP
1950.	HORN, ROBERT C., Henry Ford Hospital, Detroit, Mich. (48202)	I
1953.	IMBER, IRVING, 428 Walnut St., Reading, Pa. (19601)	S
1958.	IMPINK, ROBERT R., 405 Oley St., Reading, Pa. (19601)	S
1960.	JENSON, WILLIAM K., Desert Hosp., 1151 N. Via Miraleste, Palm Springs, Calif. (92262)	S
1952.	JONAS, KARL C., 916 19th St. N.W., Washington, D.C. (20006)	S
1955.	JORDAN, CLAUS G., 175 E. Brown St., E. Stroundsburg, Pa. (18301)	S
1961.	JOYNER, CLAUDE R., 320 E. North Ave., Pittsburgh, Pa. (15212)	I C
1957.	KANE, SYDNEY H., 12 Stockade Rd., Warren, N.J. (07060)	RES
1956.	KEFFER, WILLIAM H., 413 Oley St., Reading, Pa. (19601)	I
1947.	KELCHNER, CLYDE H., 1125 Turner St., Allentown, Pa. (18102)	I
1969.	*KITCHEN, JAMES G., II, The Mohican, Pocono Lake, Pa. (18347)	FP
1954.	LAMOTTE, WILLIAM O., JR., Kent & Queen Ann's Hosp., Chestertown, Md. (21620)	OPH
1963.	LANG, LEONARD P., Box 1168, Delaware Dr., Wilmington, Del (19899)	I
1971.	LEONARD, JAMES R., Suite 206, 3250 Howell Mill Rd., N.W., Atlanta, Ga. (30327)	ALR
1943.	LEOPOLD, IRVING H., The Mount Sinai Hospital, 100th St. & 5th Ave., New York, N.Y. (10029)	OPH
1952.	LEVAN, JOHN B., 2800 N.E. 30th Ave., Apt. 11-D, Lighthouse Pt., Fla. (33064)	C
1960.	LEWIS, DAVID H., Torild Wulffsgatan 37,413 19 Goteborg, Sweden	C I
1964.	LEYMASTER, GLEN R., AMA, 535 N. Dearborn St., Chicago, Ill. (60610)	PH
1949.	LHAMON, WILLIAM T., The New York Hospital, 525 E. 68th St., New York, N.Y. (10021)	P
1954.	LIGHT, JOHN J. B., 25 N. 9th St., Lebanon, Pa. (17042)	R
1971.	LIN, DAVID Y. P., Box 16, Wonowon, Br. Columbia, Canada. Voc 2 No	S
1954.	LINDENMUTH, WOODROW W., Bldg. 2, NHCU, VA Hosp., W. Spring St., West Haven, Conn. (06516)	S
1948.	LIVINGOOD, CLARENCE S., Henry Ford Hospital, Detroit, Mich. (48202)	D
1932.	*LUKENS, FRANCIS D. W., Apt. 45 Neville House, 552 N. Neville St., Pittsburgh, Pa. (15213)	I
1965.	MCCARTY, DANIEL J., JR., N. 63 W29919 Woodfield Court, Hartland, Wis. (53209)	I
1935.	MCCLENAHAN, WILLIAM U., 629 Bayview Dr., Sarasota, Fla. (33577)	FP
1948.	MCLAUGHLIN, JOHN T., 655 N. Central Ave., Glendale, Calif. (91203)	S
1950.	MACKMULL, GULDEN, 12995 S.W. King Richard Dr., King City, Tigard, Oregon (97223)	I
1949.	MAC NEAL, PERRY SCOTT, 513 S. Lenola Rd., Moorestown, N.J. (08057)	I
1942.	MANGES, LEWIS C., JR., R.D. 2, Windsor, N.Y. (13865)	S FP
1959.	MANIGLIA, ROSARIO, Holy Spirit Hospital, Camp Hill, Pa. (17011)	PATH
1953.	MARGOLIES, MICHAEL, 567 E. Chestnut St., Coatesville, Pa. (19320)	I C
1955.	MARGOLIES, M. PRICE, 379 E. Chestnut St., Coatesville, Pa. (19320)	C
1935.	MASON, JAMES B., 1730 S. Jackson St., Tacoma, Washington (98465)	S
1939.	MAY, HANS, P.O. Box 1477, Christiansted St. Croix, U.S. Virgin Is. (00820)	PL
1932.	MEADE, RICHARD H., JR., 750 San Jose Dr., Grand Rapids, Mich. (49506)	S TS
1954.	MERTENS-ROESLER, ELIZABETH, 835 Lawson St., Apt. 105, Fayetteville, Ark. (72701)	S TS
1946.	MILLER, FRANKLIN R., Snyder-Jones Clinc, First Nat'l Bk. Bldg., Winfield, Kans. (67156)	I HEMA
1936.	MORGAN, DAVID R., Rt. 4, Box 40, c/o D. R. Van Horn, Edwardsville, Ill.	
1949.	MOTLEY, HURLEY L., 212 Shatto St., Los Angeles, Calif. (90017)	CH
1971.	MOULDER, PETER V., V Hosp., Gainesville, Fla. (32601)	S TS
1953.	MURPHY, EDWARD J., 1880 E. Commercial Blvd., Ft. Lauderdale, Fla. (33308)	OBG
1958.	NEALON, THOMAS F., JR., St. Vincent's Hosp. & Med. Center, 170 W. 12th St., N.Y., N.Y. (10011)	S TS

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1963.	NELSON, ARTHUR D., Maricopa Cty. Gen. Hosp., 2601 E. Roosevelt Ave., Phoenix, Ariz. (85008)	Adm
1960.	OJERS, GAYLORD W., 39 E. Elizabeth Ave., Bethlehem, Pa. (18018)	OPH
1956.	OPPENHEIMER, ALBERT, 224 E. Main St., Moorestown, N.J. (08057)	R ONC
1968.	OVEDOFF, DAVID, Smithkline Corp., P.O. Box 90, Brookvale, N.S.W. Australia	IND
1974.	OVERHOLT, RICHARD H., 135 Francis St., Boston, Mass. (02215)	TS
1968.	PAREIRA, MORTON D., Route 1, Box 109, Waldorf, Md. (20601)	S
1948.	PARKHURST, LEONARD WOODS, 1329 E. 6th Ave., Tallahassee, Fla. (32303)	A I
1959.	PENDERGRASS, HENRY P., Massachusetts General Hospital, Boston, Mass. (02114)	R
1961.	PETERSON, LYSLE H., P.O. Box 974, Aspen, Colo. (81611)	C
1950.	PINCUS, IRWIN J., 610 N. Roxbury Drive, Beverly Hills, Calif. (90210)	I
1958.	RACHLIN, LILLIAN, 370 Golden Oak Drive, Portola Valley, Calif. (94026)	S
1966.	RAHN, ELSA KERTESZ, 363 Hempstead Ave., Rockville Center, N.Y. (11570)	OPH
1959.	RAVENTOS, ANTOLIN, Univ. Calif. Med. Sch., Davis, Calif. (95616)	R
1938.	READ, HILTON S., 5407 Atlantic Ave., Atlantic City, N.J. (08406)	I
1964.	REED, MIRIAM, 253 Witherspoon St., Princeton, N.J. (08540)	D
1936.	REISINGER, JOHN A., 5480 Wisconsin Ave., Chevy Chase, Md. (20906)	C
1955.	RETTEW, PHILIP L., 612 Museum Rd., Reading, Pa. (19602)	I
1951.	RICHARDSON, FRED MAC D., South Side, Route 23, Claverack, N.Y. (12513)	PH
1961.	RICHARDSON, HERSCHELL E., 205 Mayerling St., Houston, Texas (77024)	I
1974.	ROBERTSON, E. NORRIS, 1211 N. Shartel Ave., Oklahoma City, Okla. (73116)	
1947.	ROGERS, ARTHUR MERRIAM, Mountain Lake, Lake Wales, Fla. (33853)	I
1971.	ROOT, ALLEN W., 801 6th St., South, St. Petersburg, Fla. (33701)	Pd
1965.	ROWE, DANIEL S., 127 Laurel Crest, Madison, Conn. (06443)	Pd
1969.	ROWLAND, LEWIS P., Dept. Neurology, 630 W. 168th St., N.Y., N.Y. (10032)	N
1973.	RUBEN, ROBERT JOEL, 1300 Morris Park Ave., Bronx, N.Y. (10461)	ALR
1936.	SANDS, JOSEPH EVANS, 135 107th St., Stone Harbor, N.J. (08247)	P
1966.	SCHOENBERG, HARRY W., St. Louis Sch. Med., 1325 S. Grand Blvd., St. Louis, Mo. (63104)	U
1958.	SCHRECK, KENNETH M., 926 East Lawn Drive, Highland Heights, Ohio (14414)	I
1963.	SCHUMACHER, L. RICHARD, 16 Donaldson St., Doylestown, Pa. (18901)	I
1941.	SHANDS, ALFRED R., JR., Alfred I. duPont Institute, P.O. Box 269, Wilmington, Del. (19899)	OR
1964.	SHARPE, WILLIAM D., 227 E. 19th St., N.Y., N.Y. (10003)	PATH
1950.	SHIFFER, PAUL H., Dreher Ave., R.D. 5, Box 5, Stroudsburg, Pa. (18360)	R
1964.	SHIMKIN, MICHAEL B., Dept. Community Med., Univ. of Calif. Med. Sch., La Jolla, Calif. (92037)	I ONC
1951.	SHOREY, WINSTON K., 7117 Shamrock Drive, Little Rock, Arkansas (72205)	I
1972.	SIGEL, BERNARD, 936 Fisher Lane, Winnetka, Ill. (60093)	S
1968.	SLATE, WILLIAM G., P.O. Box 1951, Wilmington, Del. (19899)	OBG
1933.	SMELZER, DONALD C., 207 E. Orange St., Lancaster, Pa. (17602)	Adm
1955.	SMITH, J. WINSLOW, 824 Coventry Drive, Boca Raton, Florida (33432)	S
1952.	*STEIGER, WILLIAM A., 1732 Sir William Osler Drive, Virginia Beach, Virginia (23454)	I
1942.	STENGEL, ALFRED, JR., P.O. Box 522, Center Harbor, N.H. (03236)	I
1955.	STEVENSON, THEODORE D., R.D. 1, Box 201 P, Swannanoa, N.C. (28778)	S
1931.	STILES, MERRITT H., 406 E. 14th Ave., Spokane, Wash. (99202)	I
1971.	STUMPE, ALFRED R., Box 128-A, Route 1, Ashford, Ala. (36312)	PRM
1934.	SUMMEY, THOMAS J., Marrowdale Farm, Box 236, Charlottesville, Va. (22901)	S
1961.	SUNDERMAN, F. WILLIAM, JR., Univ. of Conn. Sch. Med., P.O. Box G, Farmington, Conn. (06032)	PATH
1965.	SWARTLEY, ROBERT N., 44 Walnut Tree Court, Colusa, Calif. (95932)	S TS
1931.	TAYLOR, NORMAN H., Queen of the East, E. Broadway, Hamilton, Bermuda	Pd
1965.	TAYLOR, RICHARD C., Reddington Fairview Hosp., Skowhegan, Maine (04976)	PATH

* S. Weir Mitchell Associate.

ELECTED		SPECIALTY
1970.	THIER, SAMUEL O., Dept. of Medicine, Yale-New Haven Hosp., New Haven, Conn. (06510)	I
1971.	THOMPSON, HARTWELL G., P.O. Box 1547, Charleston W. Virginia (25326)	N
1942.	THOMPSON, WESLEY D., 247 E. 3rd St., Lewistown, Pa. (17044)	S
1941.	TOMPKINS, PENDLETON, Suite 202, 101 S. San Mateo Dr., San Mateo, Calif. (94401)	OBG
1954.	TURNER, LINTON W., 16 Bay Road, Ocean City, N.J. (08226)	I
1937.	UHLE, CHARLES A. W., 1005 Westover Rd., Wilmington, Del. (19807)	U
1956.	WATKINS, E. LLOYD, 1000 Gardens Parkway, Ocean City, N.J. (08226)	OBG
1974.	WEBB, WILLIAM L., JR., 865 Poplar St., Memphis, Tennessee (38104)	P
1957.	WEBSTER, MARIE, 330 Winding Way, San Francisco, Calif. (94112)	PH I
1966.	WENTZLER, J. DONALD, Box 219, Montoursville, Pa. (17754)	ANES
1973.	WESTLAKE, ROBERT J., 333 Grotto Ave., Providence, R.I. (02906)	P
1959.	WHAYNE, TOM F., University of Kentucky Medical Center, Lexington, Ky. (40506)	PrM
1966.	WHITE, RICHARD K., 1702 Walnut St., Allentown, Pa. (18104)	OR
1974.	WILBUR, DWIGHT L., 655 Sutter St., San Francisco, Calif. (94102)	GL
1936.	WILDER, THEODORE S., 18 Wildwood Dr., Sherborn, Mass. (01770)	Pd
1935.	WILLARD, JOHN H., R.D. #1, Box 95, Sanibel, Fla. (33957)	I
1949.	WILLSON, J. ROBERT, University of Michigan Medical Center, Ann. Arbor, Michigan (48104)	OBG
1948.	WINSTON, JULIUS, 1616 Pacific Ave., Atlantic City, N.J. (08400)	ALR
1963.	WOOD, HORATIO C., IV, 2600 Euclid Ave., Cincinnati, Ohio (45219)	P
1941.	*YOUNG, BARTON R., 2324 Bath St., Santa Barbara, Calif. (93105)	R
1953.	ZARAFONETIS, CHRIS J. D., Simpson Memorial Institute, University of Michigan, Ann Arbor, Michigan (48103)	I HEMA

Honorary Fellows

AMERICAN

ELECTED

1967. BELL, WHITFIELD J., JR., PH.D., D.LITT. (HON.), LL.D. (HON.) American Philosophical Society, Independence Square (19106)

1973. CLERF, LOUIS H., M.D., LL.D. (HON.), D.LITT. (HON), D.SC. (HON.), 5575 8th Ave., N., St. Petersburg, Fla. (33705)

1964. CORNER, GEORGE WASHINGTON, M.D., SC.D. (HON.), LL.D. (HON), LITT.D. (HON.), 1810 Rittenhouse Square (19103)

1973. CUMMINGS, MARTIN M., M.D., D.SC., 11317 Rolling House Rd., Rockville, Md. (20852)

1959. FAY, MARION S., M.A., PH.D., SC.D. (HON.), LL.D. (HON.), 3233 Queen Lane (19129)

1965. GURIN, SAMUEL, PH.D., SC.D. (HON.), University of Florida, Gainesville, Fla. (32601)

1971. HANDY, MARGARET IRVING, M.D., SC.D. (HON.), 1415 Delaware Ave., Wilmington, Delaware (19806)

1973. MIDDLETON, WILLIAM S., M.D., SC.D. (HON.), LL.D., L.H.D., 2114 Adams St., Madison, Wisc. (53705)

1973. OPPENHEIMER JANE MARION, PH.D., Bryn Mawr College, Bryn Mawr, Pa. (19010)

1973. SCHMIDT CARL F., M.D., University of Pennsylvania School of Medicine (19104)

FOREIGN

1973. BLEULER, MANFRED, M.D., Univ. of Zurich, Bahnhofstrasse 49, 8702 Zollikon, Switzerland

1973. CRAFOORD, CLARENCE, M.D., Karolinska Sjukhuset, Stockholm, Sweden

1955. MANN, IDA, M.A., D.SC., M.B., B.S., L.R.C.P., D.O.M.S., F.R.C.S., Ophthalmic Consultant to the Government of W. Australia, 56 Hobbs St., Nedlands, Perth, W. Australia.

* S. Weir Mitchell Associate.

Honorary Associate Fellows

1955. Diemand, John A., President, Insurance Company of North America, 1600 Arch St. (19102)
1974. Foster, Richard Wingate, 205 Strafford Ave., Wayne, Pa. (19087)
1971. Lang, Olga Ellen, 1527 Pine St. (19102)
1974. McDaniel, Walton Brooks, 2d., Ph.D. 2414 Kennedy House, 1900 J. F. Kennedy Blvd. (19103)
1967. Rosenwald, Lessing J., 1146 Fox Chase Rd., Jenkintown, Pa. (19046)
1967. Wintersteen, Mrs. John, 1425 Mt. Pleasant Rd., Villanova, Pa. (19085)

Necrological List of Fellows

January 1973–June 1974

Date Elected	Resident Fellows	
1944	Joseph P. Atkins, M.D.	1909–74
1921	John W. Bransfield, M.D.	1888–1973
1956	James B. Carty, M.D.	1914–73
1952	John D. Corbit, Jr., M.D.	1910–73
1949	Robert D. Dripps, M.D.	1911–73
1947	John K. Durkin, M.D.	1901–73
1943	Arthur K. Finkelstein, M.D.	1906–73
1955	Bernard C. Gettes, M.D.	1912–73
1963	Giacchino P. Giambalvo, M.D.	1891–1973
1934	John H. Gibbon, Jr., M.D.	1903–73
1929	Francis G. Harrison, M.D.	1891–1971
1949	Henry U. Hopkins, M.D.	1900–73
1954	William C. Hunsicker, M.D.	1902–74
1957	Leon Kacher, M.D.	1913–73
1952	Igho H. Kornblueh, M.D.	1900–73
1936	William G. Leaman, Jr., M.D.	1898–1973
1931	Edwin P. Longaker, M.D.	1889–1973
1936	Pascal F. Lucchesi, M.D.	1903–73
1958	David J. Reinhardt, III, M.D.	1925–74
1932	Frederick R. Robbins, M.D.	1897–1973
1952	Arthur F. Seifer, M.D.	1911–73
1952	Richard T. Smith, M.D.	1914–73
1964	Murray G. Smyth, Jr., M.D.	1926–73
1911	William T. Snagg, M.D.	1968–73
1937	John L. Spangler, M.D.	1890–1973
1953	Rendall R. Strawbridge, M.D.	1909–74
1961	Per-Olof Therman, M.D.	1910–73
1953	Marston T. Woodruff, M.D.	1905–73
1933	J. Donald Zulick, M.D.	1883–1973

Non-Resident Fellows		
1960	Catherine L. Bacon, M.D.	1899–1973
1921	Francis F. Borzell, M.D.	1882–1973
1939	Leonard C. Hamblock, M.D.	1899–1974
1955	A. Gorman Hills, M.D.	1915–73
1935	Helen Ingleby, M.D.	1887–1973
1963	James J. Ryan, M.D.	1915–73
1945	James F. Schell, M.D.	1899–1973
1941	Ruth H. Weaver, M.D.	1892–1973.

The S. Weir Mitchell Associates

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Albert Einstein Medical Board
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Annenberg, Walter
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A Symposium
Privacy: Patients' Medical Records and Insurance

I. The Right of Privacy and the Medical Information Bureau[1]

By JOSEPH C. WILBERDING, Esq.[2]

I feel honored to have been given this opportunity to talk to you today about privacy and insurance records. Let us look first at privacy, and thereafter I shall describe briefly the Medical Information Bureau, which I manage.

PRIVACY

The subject of privacy is now much discussed and it is a matter of concern and interest to most of us. In some ways, the phrase "right of privacy" has become a slogan and, as with many slogans, it is hard to arrive at any simple definition of what it means. This has been particularly true when my fellow lawyers have entered into the exercise. The general obfuscation and total disarray as to the meaning of "pornography" is a prime example. Nevertheless, it is to the legal world that we must turn for most political and social definitions, especially as to "rights," and "privacy" is no exception. So let us briefly look at the legal concept.

Many years ago, two prominent attorneys defined the right of privacy as "the right to be let alone." [Warren & Brandeis, "The Right of Privacy," 4 Harvard Law Review 193,196 (1890).]

That really isn't very informative, so over the years the courts have developed four basic areas in which it was felt that the rights of the individual should be protected under the heading of Privacy [see Prosser, "Privacy," 48 California Law Review 383,389 (1960)]. These are:

1. Protection against intrusion on the seclusion or solitude or into the private affairs of an individual. This has generally been considered to refer to physical intrusion or search, such as wiretapping, eavesdropping, etc.
2. Protection against public disclosure of embarrassing private facts of an

[1] Section on Insurance Medicine of The College of Physicians of Philadelphia and Philadelphia County Medical Society at The College of Physicians of Philadelphia, November 13, 1974.

[2] Executive Director and General Counsel, Medical Information Bureau, 35 Mason Street, Greenwich, Connecticut 06830.

individual. This is where confidentiality of medical records comes into the picture.

3. Protection against publicity which places an individual in a false light, and, finally,
4. Protection against the appropriation of an individual's name or likeness (for example, photograph) for monetary advantage.

I think anyone, and especially physicians and insurance people, could agree that each of these rights should be recognized and protected. I also believe that if any fair analysis is given to what is actually being done, it would be found that physicians and the life insurance industry do recognize and do their best to protect them. This is the law of privacy as it has been enunciated by the courts up to this time. However, the law is never static, and most of the talk of privacy today is in terms of new concepts which are being urged upon the courts and legislatures. These are suggested in terms of formulating a "new right of privacy" to protect the individual from the technological advances of the computer age. Today, the proponents of this expansion focus chiefly on the assembly and use of computer records. The new computer technology, it is said, permits the following:

1. A permanent dossier. A computer can neither forgive nor forget; thus, it lacks a primary characteristic of our society. Here I would note that the Medical Information Bureau eliminates all records after seven years.
2. Centralized computer files are alleged highly vulnerable to widespread and surreptitious access. We have taken many steps to prevent this with insurance records, and we do not believe it occurs.
3. Computer records are frequently questioned as to accuracy. Here, the computer is often blamed for the fact that incorrect information has been put into it. This, of course, is a people problem, not a computer problem.
4. It is said that important decisions regarding individuals are now frequently based solely on computer information, and occasionally this information may be incorrect or incomplete. Using a well-known legal concept, it is argued that the rights of "due process" must be given to any individual who has been the subject of any such decision, whether for credit, insurance or otherwise. This due process would include the right to know the basic information upon which the decision has been made and the right to dispute it. The insurance industry does have procedures for disclosure and disputed accuracy.
5. Finally, it is asserted that it is relatively easy for law enforcement officials to obtain access to information in data banks. It is surprising how many educated people consider all law enforcement officials to be the "bad guys" and, at the very least, incipient fascists. MIB has never disclosed its records to government agencies.

These are the general reasons that have been given for the expansion of the right of privacy.

Recently, the privacy discussion has turned to medical records and just how confidentially they are treated.

There is a valid and deep concern about how medical records of patients are now stored and used, and there is a clarion call of alarm being expressed as to what may occur in the future when the delivery of universal medical services becomes, to at least some degree, a federal matter.

As you probably know, many Medi-

care and Medicaid records are now stored on computers. This movement will probably continue as the Federal Government moves further into the health field. When massive numbers are involved, the auditing, monitoring, and even the evaluation of care and treatment, all seem to entail a greater need for massive computer storage of medical and other personal information. The protection of these records—seeing that they are properly acquired and properly used for given purposes only—is a matter of concern to a large and vocal part of the public. The life insurance business as an institution, and we as individuals, share the common concern that medical records should be reasonably and properly handled in a confidential manner. Our industry wants no more information than is necessary to perform its function—the insurance of the lives of individuals. It certainly wants to treat this information as confidential. Otherwise, it is unlikely to be available in the future.

The concern regarding medical information is being expressed by Congress, by state legislative bodies, and by the American Medical Association. Many new bills are being proposed covering data banks, computers and medical records. It is estimated by one expert that there will be three hundred such bills introduced in the next year. Sometimes, the cry is "the need to protect privacy." Sometimes, it is "down with computers," and sometimes, it is just common sense appeal for fairness in handling an individual's medical record, i.e., that these records should be "kept confidential." Whatever the cry, the net effect is going to result in legislation in this area.

For those who have an interest in medical records, the major question will be whether or not the laws are properly designed to protect the individual's interest in his record, without destroying the legitimate interest of society in much of the same material. The right of privacy cannot be absolute for as the New York State Court of Appeals said, in the case of Nader v. General Motors, "some intrusions into one's private sphere are inevitable concomitants of life in an industrial and densely populated society." [Nader v. General Motors Corporation, 25 N.Y. 2d 560,566.]

A law requiring complete and unlimited privacy could result in harm both to the delivery of future medical care and to such institutions as the life insurance business that must have some access to individual medical records. You, as physicians, should be thinking of making your contribution to the legislative process, through your society perhaps, or by other means. We, in the life insurance business, because of the very nature of the process of insuring lives, will try to make our contribution. Hopefully, the medical profession and the life insurance industry will most often be on the same side. But one side or other, let us try to see that we arrive at sensible, well considered solutions to what many can agree to be a very large problem.

Now we in the life insurance industry feel the basic problem in regard to medical records is to assure that they are handled in a confidential manner by all concerned. Informed consent, disclosure and disputed accuracy procedures—these are part of the new privacy concept, and we think we meet them; but, without confidential care, they will not answer the needs of individuals as to their medical records.

In this regard, we fully support the following quote from the recent report of the Council on Medical Services of the AMA as submitted and accepted at the past June meeting of the AMA: "All medical information which passes between the doctor, the hospital, and insurance company will be considered as

confidential and will not be released without proper authorization. Whenever a claimant requests information concerning a medical diagnosis on himself, he will be instructed to contact his personal physician for the information."

So much for my discussion of the right of privacy. In summary, the development of this concept is continuing; it is highly important to medical records, and a big factor is confidentiality.

Now what are the duties that are entailed in confidentiality? The courts have indicated two: 1., the information must be kept secret and must not be disclosed to third parties not authorized to receive it, and 2., there is an obligation to act with integrity and completely within the trust of the individual who is the subject of the information.

It is certainly the intended purpose of the life insurance business to live up to both of these duties. Today we propose to tell you what we are thinking about, and doing, in this regard.

It is my part of this program to talk to you about the organized exchange of medical information between the medical directors of life insurance companies. The organization is called the Medical Information Bureau, and I have been its executive for over twenty-eight years. It is also referred to as the "MIB." This bureau is a non-profit membership association of life insurance companies founded by the Association of Life Insurance Medical Directors in 1902.

Physicians associated with the insurance industry have played a dominant role since its founding. At this time, four physicians serve on the nine-member executive committee. All of the activities and affairs of the Bureau are monitored regularly by these men and representatives of the Association of Life Insurance Medical Directors.

We have over 700 member companies in the United States and Canada. Each is required to have a locally licensed physician and surgeon as its medical director, and he must assume individual responsibility for the care, security, and use of any information received from the Bureau.

While the MIB has never sought the limelight, it certainly is not a secret organization to anyone in the life insurance business. Also, it is known to most insurance regulatory authorities. The Federal Trade Commission has found that we meet the requirements of the Federal Fair Credit Reporting Act. In addition, the Bureau has been regularly examined by the New York State Insurance Department, with favorable results. MIB has continued to function over this long period of time because it is an integral part of the underwriting process. To understand why, there are three basic points about underwriting that you should know:

1. *Funding.* In life insurance, the great bulk of the money that is contributed by policyholders as premiums goes to pay the beneficiaries of those who have died. Inasmuch as most of us own life insurance, life insurance is "us" not "they."
2. *Fair Sharing of the Risk Is Basic.* Every applicant for life insurance will die, but it is impossible to say exactly when as to that individual. Sooner or later, in the absence of lapse of payment in premiums, he or his heirs will be collecting his share of the group funds. Through actuarial statistics, it can be predicted with remarkable accuracy that a certain number of any age group will die within any year. The organization must have the funds on hand to pay the death claims as they arise.

   Thus, the basic question to be decided when an individual applies for life insurance is how much he should

pay into his group each year in order to contribute his fair share to the death benefits payments that will fall due in the predictable future. If he does not contribute his fair share, some other policyholders somewhere will have to make it up. Fundamentally, this is just as true in a stock life insurance company as in a mutual.

One of the jobs of the life insurance underwriter is to make the decision as to which group the applicant belongs in—in effect, how much premium he should pay in order to make his fair contribution to the group. If the premium has not been properly calculated or if too many poor risks have been admitted to the group and numerous early losses have occurred, then the remaining (or new) policyholders will have to make up the funds to pay these losses.

The underwriter has mortality tables to assist him and, of course, he knows the age, occupation and other statistical data about the applicant. Age alone could possibly be used in underwriting if one could safely assume that the amounts at risk would be uniform and at not too high a level and that all of the applicants were of an *average* state of health. However, it is surely obvious that everyone who applies is not in good health and many of them are *not* in an average state of health. Also, the applications and the amounts of insurance issued can range all the way from one hundred dollars up to several million dollars. So the underwriter must go further and obtain such information as he can about the state of health of the applicant so that he may be correctly placed in a group and assigned the proper premium. The ability to obtain *adverse* health histories is not only of assistance to the underwriters to place those who are in poor health in a different group from those who are in good health, but is is also of benefit to the underwriting of the remaining group in average health who are accepted as standard risks. This latter group comprises about 90% of the total.

3. *Not Everyone Wishes to Pay His Share.* Experience has indicated that when an individual has applied to one company and has been declined or rated, he is more anxious than ever to secure some life insurance. At this point when he comes to another company, knowledge of prior findings may be especially valuable when there is an effort to conceal. It is, therefore, very helpful to know whether or not a given applicant has in fact applied for insurance with another company. He may have been rated up or refused insurance. It is only fair to the 90% of people who are standard risks and who would have to pay the extra premium for the substandard risk if the latter were not discovered in the process of underwriting. The function of MIB is to acquaint companies to which an individual applies with a brief indication of prior underwriting experience.

HOW THE MEDICAL INFORMATION BUREAU WORKS

Enough for underwriting principles. How does the MIB system work? How does it perform this function?

Information is reported to the MIB only by the member companies, and these reports are compiled from a "list of impairments." This list covers a broad

spectrum of health conditions and a few other factors that would be of some significance to the underwriting of life insurance. The list is revised periodically by the MIB and is in the form of a confidential code. If any of you are interested and would like to see the items covered, please write and I shall send you a copy, without the code numbers.

If a member company, when considering an application finds one of these conditions, then the company is pledged to report that information in brief, three-digit coded form to the Bureau's central office. These reports are extremely brief and are certainly not sufficient to be called "dossiers" or "complete medical histories." The company, in effect, stores a brief index of its findings with the MIB so that this will be available *only* if another company has received an application on the same person. About twelve and one-half million records are on the Bureau's computer file.

The Bureau receives these entries of coded information only from its members, and there are no outside sources of information. The Bureau has no employees who investigate or examine individuals, nor do we use any other investigative agency. The information is sent to other member companies only on properly authorized inquiry. It may not be sent to credit bureaus, government agencies, or non-member insurers.

The reporting members do not indicate whether an application has been declined, rated, postponed or accepted, and they also do not state the amount of insurance applied for. In other words, the underwriting evaluation of a case is not referred to the Bureau, only the impairments which appear on the underwriting papers. Information derived from health insurance claims is no longer reported (by Rule effective April 1, 1974).

Great stress is laid on identity, accuracy and correctness in submitting and providing reports. The Bureau's service office is *not* given the key to the code symbols; the work of printing and editing must be done without knowing the meaning of what is being handled.

Favorable information is reported as well as unfavorable. For example, favorable electrocardiograms and X-rays are reported and also the results of favorable glucose tolerance tests.

If an impairment has been reported present by a company and on subsequent examination by the same company or another company it is found no longer present, then the Bureau's rules require that this favorable result should also be reported to the Bureau. This is referred to as "clearing the record." The old information is not eliminated, but both the old and the new information are present. If the old information is based on *incorrect data*, the reporting company is required then to change or eliminate the record.

The Bureau's procedures include mechanisms for disclosure and for correction of inaccuracies. They are available to interested applicants and insured persons on written request.

MIB reports are used only as an alerting device to the underwriter. Information is sought on the *details* of impairments only in instances where there is proper authorization, including a signed application on file, and *after* the company has completed its own independent investigation. No application may be declined, rated or restricted because of an MIB entry.

Each member must make its own independent investigation and come to its own independent conclusion regarding the risk. As you can see, the system is self-corrective since each report must be rechecked each time it is used. If it is found to be incorrect at any point along the line, the procedures require, and the

members do follow this, that corrections and changes be submitted.

MIB information and its code lists are made available only to designated personnel in the home offices of member companies and only for underwriting and claims purposes.

The rules of the organization are supervised by the Medical Director and by the Bureau staff. Each company is subject to expulsion if it has been found to violate its MIB pledge.

As many of you know, there has been some criticism in various segments of the press recently regarding both the use of medical records by the insurance industry and MIB. We believe this criticism has occurred primarily because people do not know or understand how the MIB works and why its existence is necessary in order for the life insurance industry to operate in an economical and efficient manner. To meet some of these criticisms, while still preserving the fundamental protection and usefulness of the Bureau, the MIB has made two changes recently which are now being put into effect. These provide that:

1. MIB may not be searched unless the usual authorization form has been signed by the proposed insured *and this form must contain mention of MIB.*
2. Every proposed insured must be given a pre-notice in a particular form which describes the MIB and gives its address, indicates that a report might be made to the MIB, and notes the availability of disclosure and corrective procedures.

It should be emphasized that these changes were under study for more than a year prior to adoption last March. They are an outgrowth of the increasing awareness of the industry, the public and the press that the matter of confidentiality has become of importance, not only with respect to medical history, but with respect to many other aspects of our lives.

Senator Proxmire said, in a press release announcing this program, "I believe these new procedures will help remove the veil of secrecy surrounding the Medical Information Bureau. The Bureau is to be congratulated for its constructive efforts to disclose its operations to consumers."

CONCLUSION

I summarize the points that I have made, as follows:

1. The right of privacy has many aspects, but certainly as far as medical records are concerned, confidential treatment is of the essence.
2. Life insurance is a device whereby responsible people may join together to share the burden of the risk of untimely death. In any sharing, the burden must be fairly and intelligently allocated; otherwise, people will not join.
3. Knowledge of prior health history is an essential need of any such allocation. If the individual's privacy is "invaded," it is with his knowledge and consent, done in order to accomplish a justifiable social purpose.
4. The MIB *helps* meet this need by organizing a careful, limited, confidential exchange of information, solely among its member companies. As a result, insurance is less expensive for all; it is issued more quickly; and, there is far less redundant seeking of medical histories from a busy profession.

II. Confidentiality of Patient Medical Information[1]

By ROBERT S. LONG, M.D., D.A.I.M.[2]

One of the hottest subjects in many departments of our industry associations and in our companies is the matter of confidentiality and security of medical information obtained from attending physicians. Everyone seems to want to get into the act. We hear and read all kinds of very critical statements, articles, and speeches from people in government, self-appointed representatives of consumers, organized medical societies and their spokesmen, individual physicians, and others.

I believe that a good deal of this has come about, not because of any dereliction of duty on the part of insurance companies generally but because everyone has become more and more apprehensive in recent years about the intrusion of government into his life, whether it be in the area of medical care, insurance, business, agriculture or any other industry. As the taxes go up and up and the number of regulations and laws multiply faster and faster, everyone's life gets affected more and more intimately and personally and everyone is getting a little bit scared.

We all know that the medical profession generally and the insurance industry as well have become the favorite whipping boys of many social planners and politicians as well as certain elements of the public press for reasons of their own, so the matter of confidentiality of medical information has become tied to general criticism of all elements of the medical care field. Doctors have become apprehensive about controls of all kinds. They are particularly upset about the increase in malpractice suits and other damage suits and they have often magnified all of their old fears and illusions about the big, bad, rich insurance companies.

Insurance companies, on the other hand, are often finding cases in which medical information was not supplied by a particular physician which would have been pertinent to underwriting or to a claim, or they find a great resistance by physicians to supplying any information at all in a timely fashion and at a reasonable cost. Everyone has been upset about this matter for much too long, in spite of the fact that a great deal of progress has been made towards reaching an understanding of the nature and scope of the problem. Unfortunately, the controversies are kept alive by people who want to talk too much or write too much in the public press.

While the subject matter has been one that has required a certain amount of consideration over the years, it has only really been in the last ten years since we have begun to have more and more social-pressure-type legislation from the federal government that the matter has become more acute. Possibly one of the first major federal acts on this subject was the Fair Credit Reporting Act and some lesser pieces of legislation leading up to that.

The Association of Life Insurance Medical Directors of America began talking about this subject in real earnest some seven or eight years ago when the problem of trying to get information about psychiatric cases had become so acute that it seemed necessary to de-

[1] Section on Insurance Medicine of The College of Physicians of Philadelphia and Philadelphia County Medical Society at The College of Physicians of Philadelphia, November 13, 1974.

[2] Associate Medical Director, Mutual of Omaha, Omaha, Nebraska 68131.

velop some kind of meeting of the minds between the psychiatrists and the industry. Accordingly, Dr. Maurice Rougraff and Mr. Don Hankin and others met with representatives of the American Psychiatric Association on many, many occasions. It took quite a while to get to a common language, but finally this was accomplished. The work of this committee was taken over by the Medical Relations Committee of the Health Insurance Association of America two years ago. This committee, of which I am chairman, has been very busy working on various facets of this problem since that time.

Briefly, the Task Force on Confidentiality of the American Psychiatric Association and representatives of the Medical Relations Committee of HIAA developed a coding system which fits in with the *Official Diagnostic and Statistical Manual of Mental Disorders* published by the APA and sometimes known as DSM-II and which provides not only the specific single term describing the mental or nervous disorder but also some indication in one of six categories as to its severity, to the apparent prognosis, and to the methods of treatment and thereby provides some sort of rough guideline as to how much money that kind of illness is going to cost for that particular patient. The APA Task Force has presented this to their parent body, and we hope and believe that there will be a field trial using this method of reporting to insurance companies about psychiatric disorders sometime in the very near future.

The only alternative method that appears to be satisfactory would be for the psychiatrists or for the individual physician in reporting a psychiatric diagnosis or, in fact, reporting any diagnosis in which he wants to be especially certain about confidentiality and security, to communicate directly or send his report directly to the attention of the medical director of the insuring company. This could be used even in those group cases which are administered by a third party such as an administrator, an employer, or union. Naturally, it would be necessary to hold the number to a minimum, because there is no way that the administrator or employer could be bypassed for *all* reporting claims in all diagnostic categories, but at least this route would be available for those that appear to be especially important to the reporting physician.

After a series of meetings extending over a period of two or three years, representatives of the insurance industry, through the HIAA and the American Medical Association Committee on Health Care Financing, prepared and subscribed to a joint statement defining the problem and indicating steps that had been and were being taken to control the matter of confidentiality and security of medical information.

The contents of this joint statement have been approved by the AMA House of Delegates upon recommendation and report of the Council on Medical Services, and the principles have also been approved by the Board of Directors of the HIAA. The paper has been widely distributed and I shall not repeat the contents of it at this time.

All of the leading life and health insurance companies have extended invitations to physicians generally, and particularly to physician leaders in the medical community, to come into their home offices to see for themselves the steps that are taken to maintain confidentiality and security of information. Several such meetings have been held and have been uniformly successful in satisfying the physicians who attended that adequate measures were, in fact, being taken. The invitation still stands for any one physician or a group of physicians or physicians' organizations or representa-

tives to attend such meetings which any medical director of any of the major companies will be very glad to arrange.

In addition to the joint statement already referred to, we are working also with the Legal Department of the American Medical Association in helping with and advising on the development of model legislation which might be available to be used in the various state legislatures if someone or some organization has a compelling urge to have such legislation introduced relating to confidentiality of patient medical information. We are also working separately with representatives of the California Medical Association who are actively pursuing the introduction of legislation of some type in their state, and we hope that it will be consistent with the model legislation being developed by the AMA.

One of the facets of the problem which has been very difficult to handle and about which there has been a great deal of criticism from physicians and others has been the wording and nature of the release form which the patient-applicant or patient-claimant is asked to sign in order for the attending physician to release confidential medical information. It appears that this matter will have to be solved at the legal and State Insurance Department level, because there are already both statutes and regulations within insurance departments which have the force of law pertaining to this matter. I do not believe that we should spend very much time discussing this as physicians other than to be certain that we are adequately protected by advice of our own legal counsel or our own medical organizations.

In this connection there have been significant changes in very recent times in the language of these release forms, first in response to the Federal Fair Credit Reporting Act and subsequently in response to modifications of that law and other federal statutes relating to release of information of a confidential nature, whether it be medical or other types of information.

Most companies now include in their release forms a statement regarding the purpose for which the information will be used, namely to determine insurability or for the administration of claims. The forms also commonly contain information as to by whom the information may be used, including the requesting company obtaining authorization, or any other specifically named company, or any other entity which also has a separate specific authorization from the applicant or insured person.

We believe that it is important for everyone to remember, and for legislation to so state if it be enacted, that the authorization for the release of confidential patient medical information is the privilege of the patient-insured, not the privilege of the physician or others, and we believe that there should be no impairment of the right of the patient to authorize release of medical information about himself.

After all, it is important to people applying for insurance that they get the coverage that they need, and certainly we all want them to have it. Insurance companies simply cannot assign the proper risk, and hence the proper premium rates to individuals or groups, unless they have access to an adequate amount of medical information from which to make the correct judgments which would be best for the applicants. There should be no obstacles put in the way of persons who want to obtain insurance coverage of any type.

Also, in order for *benefits* to be provided properly, it is necessary to have essential medical information so that these benefits can be paid in as great amount as possible under the existing contract and so that benefits will not be

paid to those who are not entitled to them, the payment of which if not proper would unnecessarily increase the cost of insurance to all others.

In the final analysis, there is only one satisfactory way for people to obtain the insurance they need and that is for physicians and insurance companies to work closely together and to work out their problems privately rather than taking them to government.

You might be interested to know that we do talk with the American Medical Association, the American Society of Internal Medicine, and other organized medical societies about many other matters of mutual interest. Some of these pertain, for example, to national health insurance, foundation and PSRO activities and developments, reimbursement of physicians' assistants, HMOs and similar pre-paid medical care plans, changing concepts in the insurance of maternity care, pediatric care, ambulatory surgicenters, the matter of concurrent care by several physicians, peer review, development of a national "Prevailing Health Care Charges System," and many other matters.

III. Insurance Safeguards and the Consumer's Right to Know[1]

By PAUL S. ENTMACHER, M.D., F.A.C.P.[2]

In this age of consumerism, many institutions are being forced to re-examine long-held beliefs and principles. In many respects this is all to the good. Too often practices have arisen in government and in business which are not in the best interests of the individual and which are carried out without his knowledge or consent. Frequently safeguards can be developed or alternative methods can be adopted without serious impairment of the over-all operation or compromise of objectives. It is becoming clear that the individual right to privacy must be considered and protected even if this works to the disadvantage of the institution.

The two institutions represented at this meeting are insurance and medicine, and they both have an equal concern for the rights of individuals with whom they are in contact. In one instance it is patients and in the other applicants for insurance and policyholders. The advocates of the patient's right to know are becoming louder and in some ways more militant. Legislation is being passed in some states that will force doctors to divulge the total contents of their records. As you know, there already exists a hospital patient's bill of rights. Much of this, in my opinion, is good. Doctors are being forced to communicate more with their patients. The patients are becoming more involved in the decision-making process about the course of therapy to be used and even about whether or not any therapy should be administered. A patient has a right to die with dignity at home if he desires instead of connected to a myriad of tubes so that he may die in chemical balance. We in the medical profession were progressing toward this point in our relations with our patients, but a better educated, better informed public concerned with their rights as individuals certainly hastened the process. In acknowledging this, I

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must also say that the process can be pushed too far.

Enthusiasts crusading for the absolute right of an individual or patient to know everything about himself may forget two things: first, that it is possible an enlightened institution to act responsibly, and, second, that harm may be done to the individual, especially in the medical area.

It seems almost unnecessary to say that a physician should be permitted to use his judgment about when to withhold information from his patient; yet even this basic principle is being challenged. At a meeting in which I participated recently I gave what I thought was the ultimate example. A physician had been following a patient for many years, and the patient developed cancer. He was informed of this diagnosis, but the physician thought that if a recurrence of cancer occurred and the patient knew about it, the chances were good that the patient might commit suicide. A recurrence did appear, and since the patient demanded to know, the physician, against his better judgment, informed him. Within a week the patient committed suicide. Even this extreme example was countered by the argument that the patient had the right to commit suicide. I find that argument unacceptable. The physician must be permitted to use his judgment to act in what he considers to be his patient's best interests, in this instance by withholding information from him.

The insurance industry is being subjected to the same kind of well-intentioned, but at times extreme, pressure. The insurance company medical directors are acutely aware of the need to maintain the confidentiality of medical records and have taken steps to maintain that confidentiality.

There is no question that the information received from the applicant's personal physician is essential for the proper evaluation of a person applying for insurance. It is true that the insurance company conducts a medical evaluation consisting of a history as given by an applicant, as well as, in many instances, a physical examination. We all know, however, that many serious medical impairments can be present which are not detectable in a physical examination, and if an applicant fails to convey an accurate history, for whatever reason, standard insurance may be issued when in reality a substandard policy with an increased premium would be appropriate, or when possibly an applicant should be rejected altogether. The insurance company is, therefore, dependent on accurate reports from personal physicians. A study was done some years ago in which statements were obtained from attending physicians in spite of the fact that applicants indicated they had had routine examinations with negative findings. Approximately 30 percent of these statements contained information of significance, enough to warrant a different underwriting classification. Not only do reports from attending physicians supply important aspects of an applicant's medical history, but they also expand on histories already mentioned in the application form. In this regard it is good to know that a medical report may serve to make the underwriting appraisal more favorable because of details provided by the physician and his impressions that the prognosis is unusually favorable. Insurance companies do not seek information from the personal physicians of every applicant, but on the larger cases or where there is a significant previous record, these statements are routinely requested.

Physician and hospital statements are evaluated only by trained underwriters or by claim approvers under the general supervision of a medical director. The statements are filed with the applications, and access to these files is limited.

The medical information is not shared with field representatives, nor with the applicants themselves. If an applicant wishes to know the reason for receiving a substandard insurance policy or for being rejected, the practice of the insurance company is to correspond directly with the personal physician so that the significance of medical findings can be interpreted and discussed with the applicant.

With regard to the processing of claims, the previous speakers have referred to the joint statement of the American Medical Association Committee on Health Care Financing and the Medical Relations Committee of the Health Insurance Council on confidentiality of medical information. The safeguards taken by the companies to protect the confidentiality of medical information submitted on claim forms has been discussed, but here again it is important to emphasize that this information is essential for the proper processing of claims.

The Medical Information Bureau serves as an adjunct to the insurance company in determining whether or not to issue a policy to an applicant and the premium to be charged if a policy is issued. As indicated previously, some applicants for insurance may have serious medical impairments and do not apply for insurance until this serious condition becomes manifest. They then find themselves in much the same position as a man applying for fire insurance when his house is on fire. Realizing that if they admit their medical history they may not be granted the insurance, some persons deny having the impairments. Other persons have significant medical problems discovered in the course of an examination for one insurance company and apply to another company without giving this information. Some applicants forget, or think insignificant, past medical history that continues to be of importance in risk evaluation. The services of the MIB are designed to help protect against these situations. By enabling insurance companies to properly classify these impaired risks so that an appropriate premium commensurate with the mortality risk can be charged, the vast majority of applicants who qualify for standard insurance (more than 90 percent) are able to obtain their insurance more cheaply. If, on the other hand, impaired risks are inadvertently placed in the standard category because they fail to admit their medical histories, the mortality experience of the standard group will be higher, and this will have to be compensated for by charging a higher premium or decreasing the dividends paid to the surviving policyholders. We believe, therefore, that the existence of the MIB is essential to protect the best interests of both the policyholders and the companies.

The computer bank maintained by the MIB contains primarily medical information, and as you have heard, numerous steps are taken to guarantee the confidentiality of the information in the computer bank. The MIB does not store the individual's complete medical record nor even the complete insurance company file. Reports are made to the MIB only by member companies in a brief three-digit code form. Many of the code definitions are general in nature, and the coding system is purposely inadequate for reporting detailed or complete medical histories. There is no access to information in the MIB from computers outside of the member companies, and the information is available to member companies only under controlled conditions. It is believed by many that once a report is made to the MIB the information is widely distributed to the member companies. This is not the case. Information is stored in the computer, and only when a member company has a bona fide application for insurance or is proc-

essing a claim can it interrogate the MIB to see if there is a code. As indicated by the previous speaker, the individual applicant or claimant is aware that information on him may be stored in the MIB, and it is done so only with his authorization. He is given access to the information in his file so that he may be reassured of its accuracy and make corrections if necessary.

When the MIB releases information at the request of an individual, the medical information is released only to personal physicians. I indicated previously that this same procedure is followed by the individual companies when applicants write to them directly. We feel strongly that this is the proper method of handling such inquiries, but there is a growing amount of pressure on the companies and on the MIB to release information directly to applicants or policyholders. This is consistent with the movement espousing the patient's right to know everything that is in his medical record. We intend, however, to maintain our current practice and are hoping that we have the support of the medical profession. We realize that we are placing some responsibility on a personal physician when we ask him to explain to his patient the significance of his medical findings, because to some extent we are putting some of the burden of explaining an insurance rating on his shoulders. On the other hand we feel that a physician would resent and object to our quoting from his confidential report to his patient. At times a physician in his report discusses medical or psychiatric abnormalities that he has withheld from his patient because he felt that it was in his patient's best interest to do so. It would be damaging to the doctor/patient relationship if the insurance company violated the trust the physician placed in the company by divulging this confidential information.

A final point is that the MIB mechanism is being used to conduct intercompany mortality studies so that the statistics and the rating classification used by insurance companies can be kept up to date. A Center for Medico-Actuarial Statistics has been established, and approximately twenty-six companies are now pooling data on overweight and blood pressure to be analyzed by the MIB computer. This study will be published in 1976 and will be a sequel to the extensive study done on overweight and blood pressure published in 1959. At that time the mortality experience of approximately 5,000,000 policyholders was analyzed with regard to build and 4,000,000 with regard to blood pressure. The records of a similar number of policyholders will be analyzed for the 1976 Build and Blood Pressure Study. Plans are already under way for intercompany studies of individual impairments such as diabetes, coronary artery disease, peptic ulcer and others. These studies will be on an ongoing basis and will utilize the MIB's Center for Medico-Actuarial Statistics. It is apparent, therefore, that the MIB serves not only as an adjunct in the underwriting process but also as an invaluable source of statistics and as a center for conducting mortality studies.

In closing, I would like to reiterate my feeling that the consumer movement in this country has achieved many worthwhile objectives. I am in agreement with many of their goals, but unfortunately I feel that in some instances the actions and demands on the part of this movement have become extreme. Many institutions that are being criticized can and do act responsibly, but this unfortunately is not always acknowledged by the critics. There is still a long way to go, but it is gratifying that the medical profession has taken many steps in recent years to improve its communications with patients, and the insurance industry has likewise made changes to protect the rights of the individual with whom it does business.

Disorders of Gastrointestinal Motor and Sphincter Function[1]

By SIDNEY COHEN, M.D.[2]

The human gastrointestinal tract consists of a series of luminal structures anatomically separated by sphincter zones. The major motor function of the gastrointestinal tract is to move digestive products in an aboral direction and to provide the appropriate physiological conditions for normal digestion, absorption and secretion. The purpose of this discussion is to provide the framework for understanding the pathophysiology of gastrointestinal motor disturbances such as achalasia, gastroesophageal reflux, irritable colon syndrome and the stagnant bowel.

ANATOMY

The pharynx, upper esophageal sphincter, the proximal one-third of the esophagus and the external anal sphincter is composed of striated muscle. The remaining portions of the gastrointestinal tract are smooth muscle. The smooth muscle is divided into the muscularis mucosa, an outer longitudinal layer and an inner circular layer. In the colon, the longitudinal layer lies in three distinct bundles, taeniae coli.

Smooth muscle consists of discrete spindle-shaped cells that are coupled electrically through special bridges called nexuses. At the nexus, contiguous cells have a partial fusion of their outer membranes without anatomic cytoplasmic joining. The nexus is a low-resistance electrical shunt between smooth muscle.

Any disease (dermatomyositis, myasthenia gravis, etc.) that affects skeletal muscle or its innervation may affect portions of the gastrointestinal tract composed of this type of muscle. Likewise, disorders of smooth muscle (scleroderma) may alter any area of the gut composed of this muscle type.

INNERVATION

Parasympathetic nerves are carried in the vagal trunk and in the sacral or pelvic nerves. Classically, the parasympathetic (cholinergic) division is considered to be excitatory to the gut. However, it should be emphasized that not all nerves in the vagal trunk or in the pelvic nerves are excitatory cholinergic fibers. These nerve trunks also carry sympathetic fibers, non-adrenergic inhibitory nerves (purinergic) and serotonin-releasing nerves.

The sympathetic innervation is for the most part in the splanchnic nerves. Sympathetic nerves excite both alpha and beta receptors. The alpha receptor is inhibitory at all points in the gut except the esophagus, the lower esophageal sphincter, the sphincter of Oddi, the ileocecal sphincter and the internal anal sphincter where the alpha receptor is excitatory. The beta receptor is inhibitory throughout the gut.

The purinergic nerves are a newly-classified group of nerves that release a nucleotide or purine compound. These nerves are inhibitory at most sites and are probably the pathway through which sphincter relaxation occurs.

[1] Theodore Franklin Bach Lecture V, The College of Physicians of Philadelphia, December 4, 1974.

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SPHINCTERIC ZONES

Gastrointestinal sphincters are areas of tonically elevated pressure that relax or open with appropriate stimulation. Non-sphincteric or luminal structures behave in a reciprocal manner—they are at rest, and contract in response to a stimulus. There are six identifiable sphincter zones located at anatomical junctional zones.

1. The upper esophageal sphincter: A skeletal muscle structure at the junction of the pharynx and esophagus. It is a well-coordinated zone of high pressure that relaxes briefly during pharyngeal contraction. It serves to protect the trachea from aspiration. It may be incompetent in skeletal muscle diseases and contribute to aspiration pneumonia. Incoordination of its opening mechanism with pharyngeal propulsion has been implicated in the pathogenesis of pulsion diverticulum (Zenker's) of the pharynx. Cricopharyngeal achalasia has been described as a cause of dysphagia.

2. The lower esophageal sphincter: A smooth muscle physiological structure at the esophago-gastric junction. It has been found to be the major factor in preventing gastroesophageal reflux. Abnormalities in relaxation have been described in achalasia and diffuse esophageal spasm.

3. Pyloric sphincter: The pylorus is a controversial area. A role in the control of gastric emptying has been suggested but its major function may be the prevention of bile reflux from duodenum to stomach. The pyloric sphincter is incompetent in patients with gastric ulcer (active and healed) and has been implicated in the pathogenesis of gastric ulcer.

4. The sphincter of Oddi is at the junction of the common bile duct and the duodenum. The role of this sphincter may be in the control of bile flow. It has been implicated in the pathogenesis of some cases of chronic relapsing pancreatitis.

5. The ileocecal sphincter has been shown to play a major role in separating the bacterial flora of the colon from the ileum. There is a striking gradient of bacterial colonization from cecum to ileum. Small intestinal overgrowth has been suggested as a mechanism of malabsorption in patients following proximal colon resection.

6. The anal sphincter is composed of both smooth (internal) and skeletal (external) muscle. It is markedly reduced in pressure in patients with fecal incontinence. The internal anal sphincter relaxes abnormally in Hirshsprung's disease.

LUMINAL STRUCTURES

All gut luminal structures (the esophagus, stomach, small intestine and large intestine) have contractile patterns that are specifically suited for the function of that organ. Only the esophagus is quiescent at rest and contracts with swallowing. The stomach, small and large intestines have spontaneous motor activity.

1. Esophagus: During swallowing (primary peristalsis) and during esophageal distension (secondary peristalsis) a propagated ring contraction moves aborally. Peristalsis begins below the upper sphincter, sweeps the length of the esophagus and is closely coordinated with upper and lower esophageal sphincter relaxation. Peristalsis is a single contraction of specific force or amplitude. In normal persons, approximately ten percent of swallows are simultaneous or non-peristaltic (tertiary contractions). In scleroderma, peristaltic waves in the smooth muscle portion of the esophagus gradually lose their force as the disease progresses. In achalasia, peristalsis totally disappears and is replaced by tertiary contractions and spontaneous motor activity. In the esophagus, all spontaneous contractions are abnormal.

2. Stomach: The stomach performs two motor functions—storage and pro-

pulsion. The stomach can hold large quantities of material during feeding without painful distension or satiety. This function occurs through a mechanism of "receptive relaxation" whereby the stomach rapidly increases its luminal size to accomodate food and secretions. Purinergic nerves in the vagus allow the body and fundus to relax with swallowing. Another mechanism is the marked passive distensibility of gastric muscle.

The stomach also has functions in aboral propulsion. The gastric antrum and body contract at the rate of about three per minute. Waves are initiated proximally and move toward the pylorus. The rate of contraction is determined by the intrinsic pacemaker or the slow wave originating in the longitudinal layer of the upper body of the stomach. The slow wave is propagated to the circular layer through the nexal bridges. Slow waves are regularly-occurring depolarizations of muscle cells. They are always present in the stomach at about three per minute, but are only an electrical event producing a contraction when proper muscle excitability exists. If the stomach muscle is excited by parasympathetic nerves, each slow wave will fire action potentials which subsequently cause a contraction. The contractions occur at the frequency of the slow wave, three per minute. All luminal portions of the gut have slow waves of different frequencies and provide the basis of contractions in response to all stimuli. The esophagus lacks slow waves and thus does not normally show spontaneous activity as seen in the other structures.

3. Small intestine: The small bowel generates slow waves and contractions at about twelve per minute in the duodenum and nine per minute in the ileum. Contractions at the higher frequency proximally serve to move digestive products in an aboral direction. Movement of material usually occurs over several centimeters. The entire small bowel is not excited simultaneously. Excitation of contractions at the rate of the small intestinal pacemaker (slow wave frequency) occurs through cholinergic nerves, hormones, and luminal distension. The net effect of small intestinal motor function is to move digestive materials slowly and aborally, allowing digestion and absorption at all points of the small bowel.

Disorders of small intestinal motor function may be related to decreased activity or increased activity. Decreased motor activity may occur through abnormalities in slow wave generation, slow wave propagation through nexal bridges or smooth muscle activation by action potential firing. Stasis in the small bowel by any of these mechanisms usually leads to bacterial overgrowth and malabsorption. Increased motor activity and rapid passage probably occur in certain diarrheal states and may be related to bacterial toxins, post-vagotomy disorders, or drugs.

4. Colon: The motor patterns of the colon are obscure. Slow waves are observed in the colon but the gradient of activity is opposite to that of the small bowel, i.e., the slow wave frequency in the sigmoid colon is higher than in the proximal colon. This observation suggested that colonic motor activity acts to impede movement. Indeed, in diarrheal diseases such as ulcerative colitis, no contractions cay be recorded from the rectosigmoid area. In constipation (irritable colon) motor activity in the rectosigmoid is marked. It has been shown recently that in bacterial diarrheal states, and following laxatives, the slow wave activity becomes disorganized leading to ineffectual contractions, a condition analogous to the ineffectual ventricular contractions seen during fibrillation.

In the irritable colon syndrome and in diverticulosis, the rectosigmoid area is hyperactive leading to haustral zones of high pressure. Drugs such as physostig-

TABLE I
Effect of Gastrointestinal Hormones and Glucagon on Motility

	Gastrin	CCK	Secretin	Glucagon
Smooth Muscle:				
Lower esophageal sphincter	+	—	—	—
Stomach	+	+	—	—
Pyloric sphincter	—	+	+	—
Small intestine	+	+	—	—
Ileocecal sphinter	—	0	0	—
Colon	+	+	—	—
Gall bladder	+	+	+	—
Sphincter of Oddi	—	—	—	—

+ = Stimulates.
— = Inhibits.
0 = Not tested.

mine and morphine give marked colonic spasm in these diseases.

HORMONAL CONTROL OF GUT MOTOR FUNCTION

In recent years, it has been shown that gut motor function can be altered by the polypeptide hormones released from the gastrointestinal mucosa. These hormones are released in the basal state and following feeding. They have been characterized and are best known for their role in stimulating gastric acid or pancreatic secretion. The hormones, gastrin, secretin, cholecystokinin (pancreozymin), glucagon, gastric inhibitory peptide (GIP), and vasoactive intestinal peptide (VIP) act at virtually all parts of the gut. The hormones are either excitatory or inhibitory at a given portion of the gut. Perhaps, most importantly, these hormones have been recently implicated in specific disorders of gastrointestinal motor function (lower esophageal sphincter incompetence, achalasia, irritable colon syndrome, pyloric dysfunction in gastric ulcer, stagnant loop syndrome in scleroderma).

The gastrointestinal hormones and their motor actions are shown in Table I.

REFERENCE

1. Christensen, J. 1971. Medical Progress. The controls of gastrointestinal movements. *New Engl. J. Med.* **285**: 85–98.

Post-Intensive Care Problems[1]

By THOMAS R. BOGGS, Jr., M.D.[2]

Ladies and Gentlemen:

I want to express, first, my appreciation for being extended the invitation to participate in the Robert Abbé Symposium this evening. This is an honor for which I am deeply grateful.

Appropriate to our subject tonight, "Post-Intensive Care Problems," is the fact that Philadelphia was the scene of two of the earliest moves in the direction of the development of intensive care nurseries in this country. The first was the establishment by the late Dr. Joseph Stokes of the Exchange Transfusion Service twenty-two years ago at the Pennsylvania Hospital, the Hospital of the University of Pennsylvania and the Children's Hospital of Philadelphia to care for isoimmunized women and their erythroblastotic infants born at the first two institutions and outborn and referred to the Children's Hospital. In addition to its patient-care activities, the Exchange Transfusion Service made significant contributions through research and teaching to an understanding of the pathophysiology of neonatal hyperbilirubinemia and kernicterus. It continued to function as a special entity for more than a decade until the skills which were responsible for its success were widely disseminated. The Exchange Transfusion Service was followed in 1962 by the establishment at the Children's Hospital of Philadelphia of the first unit in this country designed specifically for the care of newborn infants with surgical problems. It was under the direction of Dr. C. Everett Koop and was supported by the Children's Bureau. It was modeled after Dr. T. R. Rickham's unit in the Alder Hey Hospital in Liverpool, England. Today, there are within our city limits several neonatal intensive care units providing tertiary care to inborn and/or outborn sick infants. These units are tremendously expensive to operate both in terms of highly trained personnel and sophisticated monitoring and life-support systems. One-to-one nurse-to-patient ratios are not extraordinary in providing adequate care for desperately ill infants on respirators. The cost per infant ranges up to $250.00 per day. Whether or not it is entirely accurate to refer to the Exchange Transfusion Service as being a forerunner of modern day intensive care nurseries, there can be no meaningful challenge to the fact that the procedure "exchange transfusion" was the first developed of the more specialized techniques currently in the armamentarium of intensive neonatal care today. It was a natural step to leave the umbilical vein line in place following an exchange transfusion in order to monitor serially the infant's serum bilirubin and to infuse parenteral fluids, electrolytes and glucose. We have now learned, through experience, the benefits and dangers of the many procedures currently employed in our intensive care nurseries. Table I lists the more frequently used of these procedures along with their principal hazards.

Well, what have we accomplished with all this effort and expense and what problems have we encountered or generated? A look at the problems should be

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TABLE I
Neonatal Procedures and Hazards

Umbilical Vein Lines	Septicemia, Thrombosis, Localized liver necrosis
Umbilical Artery Lines	Arterial spasm, Thrombosis leading to renal infarction and bowel gangrene, Septicemia
Exchange Transfusion	Sudden death during procedure
Oral Endotracheal Intubation	Subglottis stenosis, Injury to vocal cords, Infection
Nasoendotracheal Intubation	Same as OET plus injury to nasopharynx
Tracheotomy	Subglottic stenosis, Infection
CPAP	Constant Positive Airway Pressure, Interference with venous return, Excessive air trapping
CNP	Constant Negative Pressure, Excessive air trapping
PEEP	Positive End Airway Pressure, Interference with venous return, Excessive air trapping
Volume Respirator	Pneumothorax, Broncho-pulmonary dysplasia
Negative Tank Respirator	Pneumothorax, Question increase incidence of gastric perforation
Nasogastric Feeding	Aspiration pneumonia
Nasojejunal Feeding	?
Hyperalimentation	Infection

more meaningful in the context of the total picture—good as well as bad. To this end, I would like first to look at what is happening to our neonatal mortality rates in this country and in this City. These will be the deaths per 1000 livebirths occurring within the first twenty-eight days of life. Our neonatal intensive care nurseries are designed to have a major impact on just these statistics. Table II gives the measured neonatal mortality rates for the entire country in 1950, 1960 and 1968. The steady improvement in all three groups is obvious but so is the marked and steady discrepancy between the white and non-white experience, with the non-white mortality being significantly greater than the white. Our own inborn experience at Pennsylvania Hospital (Table III) has shown a similar decline over the past seventeen years. Actually, the Pennsylvania Hospital's figures show a greater decrease than the national average despite a very high-risk obstetric population. But more important, unlike the national experience, the Pennsylvania Hospital's figures show a marked lowering in the non-white mortality. In fact, all the improvement has resulted from a lowering of the non-white mortality with no significant change occurring in the white mortality. In 1972-73 the statistics for white and non-white neonatal mothers were identical. The difference between the Pennsylvania Hospital's and the national results probably reflects the fact that the former's obstetrical population is and has been two-thirds non-white. The larger non-white population at Pennsylvania Hospital allows this trend to stand out, whereas it is lost in the predominantly white population of the Commonwealth as a whole. It is important to take a second look at this improvement in the nonwhite neonatal mortality because it may provide some insight into whether a neonatal or a prenatal effort is principally responsible. It has long been recognized that the reason for the higher neonatal mortality rate among the non-white in this country has been the fact that non-whites, for whatever reason, tend to deliver many more immature infants [infants weighing 1000 grams (2 lbs., 3 ozs.) or less] than do whites. What then has been our neonatal mortality experience over the past two decades when modified to delete these tiny premature infants with their very

small chance for survival? I cannot develop the national figures for such a look-see, but Table IV shows what Pennsylvania Hospital's experience was. These are the data shown in Table III modified to delete the tiny baby. Now the white and non-white mortality rates are similar in all three periods. The figures in parentheses are the rates with the immature infants included. These observations prompt us to ask whether a decrease in the frequency with which non-whites have given birth to tiny non-viable babies has decreased over this same time-period during which we observed an improvement in our neonatal mortality. If so, it is quite likely that improved prenatal care (maternal and infant care programs, family planning, the pill, abortion, etc.) has played an equal or more important role in the reduction of our neonatal mortality than all our intensive care neonatal efforts. Table V shows the rates per one thousand livebirths of infants weighing <1000 grams born to white and non-white women at Pennsylvania Hospital during the years 1969 through 1973 inclusive. The downward trend from 21 to 3-8 per 1000 among the non-whites and the consistent rates of 3-6 per 1000 among the whites is clear. At Pennsylvania Hospital, at least, the observed improvement in our neonatal mortality can be accounted for, in large measure, by a significant prenatal input. Therefore, while our falling neonatal mortality rates suggest that we are indeed making progress, further analysis indicates the importance of our viewing such progress in terms of a perinatal (combined prenatal and neonatal), rather than purely a neonatal effort.

TABLE II
Neonatal Mortality Rates per 1000 Livebirths, USA[1]

	Total	White	Non-white	W/NW
1950	20.5	19.4	27.5	0.70
1960	18.7	17.2	26.9	0.64
1968	16.1	14.7	23.0	0.64

[1] Wegman, M. E., Annual Summary of Vital Statistics—1940. *Pediatrics* 48:979, 1971.

Well, if our efforts are yielding positive results, what problems have we encountered? One very serious problem is presented in Table VI from an article by Duff and Campbell, entitled "Moral and Ethical Dilemma in Special Care Nurseries," appearing in the *New England Journal of Medicine* in October, 1973. It lists the types of illnesses and the number of cases of each associated with a decision to discontinue or withdraw treatment so as to allow an infant to die. The table is self-explanatory except that it should be pointed out that most of the infants with cardiopulmonary problems were infants who developed these secondary to prolonged respirator therapy and that the infants with the "short bowel" syndrome survived their surgery only by virtue of life-support systems. It

TABLE III
Neonatal Mortality Rates Per 1000 Livebirths at Pennsylvania Hospital

	Total	White	Non-white	W/NW
1957-61 (60 mos.)	16.8 (15,846)	12.6 (9,528)	23.0 (6,381)	0.6
1964-66 (30 mos.)	14.5 (7,426)	10.5 (3,689)	18.5 (3,737)	0.6
1972-73 (24 mos.)	13.6 (4,045)	13.8 (1,593)	13.6 (2,452)	1.0

( ) = No. Livebirths.

TABLE IV
Neonatal Mortality Rates Per 1000 Livebirths at Pennsylvania Hospital
Infants ≥ 1000 Grams (2 lbs., 3 ozs.) at birth

	Total	White	Non-white	W/NW
1957-61 (60 mos.)	6.1 (16.8)	5.1 (12.6)	7.6 (23.0)	0.7 (0.6)
1964-66 (30 mos.)	5.6 (14.5)	6.0 (10.5)	5.2 (18.5)	1.2 (0.6)
1972-73 (24 mos.)	9.4 (13.6)	9.4 (13.8)	9.4 (13.6)	1.0 (1.0)

(Rates per All Livebirths.)

TABLE V
Frequency Births ≤ 1000 grams per 1000 Livebirths at Pennsylvania Hospital, 1969—73

Year	White	Non-white
1969	3	21
1970	6	10
1971	4	10
1972	6	3
1973	3	8

TABLE VI
Number and Types of Cases Associated With Discontinuance or Withdrawal of Treatment
Special Care Nursery: Yale-New Haven Hospital
January 1970—June 1972

Problem	No. Deaths
Multiple Anomalies	15
Trisomy	8
Cardiopulmonary	8
Meningomyelocele	7
Other CNS Defects	3
Short-bowel Syndrome	2
TOTAL	43

Duff and Campbell, *N.E.J.M.* 289:890, 1973.

should also be mentioned that the authors did not indicate in their article which of the triosomies were included in the second group of conditions listed. All told, there were 2,171 infants admitted to the unit during this 30-month period and there were 43 decisions to discontinue or withdraw treatment, or about one in every 50 admissions. In one instance the infant was five months old when treatment was discontinued. It was very courageous of Duff and Campbell to publish such a frank admission. By so doing they have focused considerable public attention on this dilemma of neonatal intensive care for which we as yet have no easy solution.

By far the giant's share of cost in terms of highly trained personnel and equipment of intensive care nurseries goes to the care of infants on volume or pressure respirators. Were one to demonstrate conclusively that these instruments contributed little to the survival rate of premature infants with respiratory distress, the savings would be tremendous. Indeed, the great majority of existing intensive care nurseries could be down-graded to the level of intermediate care nurseries. Pertinent to this truth is the realization that volume and pressure respirators, both requiring, in most instances, nasal or oral endotracheal intubation, are responsible for some of the most frequent and serious of post-intensive care problems. Broncho-pulmonary dysplasia (BPD) is encountered only with the use of such respirators. Prior to 1974, we had not encountered a single case of broncho-pulmonary dysplasia at Pennsylvania Hospital simply because all our mechanical assistance to respiration had been via the negative tank respirator, a modification of the iron lung, not requiring endotracheal intubation and incapable of delivery of 100% oxygen to the lungs at a pressure of more than 40 centimeters of water. Recently, we acquired a volume respirator and encoun-

tered our first case of broncho-pulmonary dysplasia. The chest X-ray of the patient on admission at age 6 hours showed almost a complete "white-out" of the lungs as the result of extensive atelectasis with marked underaeration. After an endotracheal tube was inserted and the infant assisted with our newly acquired volume respirator, the infant's chest X-ray at age 6 days showed marked improvement in his aeration. Indeed there would have had to be improvement in order for him to have survived this long, but we next saw on X-ray extensive interstitial pulmonary emphysema which forewarned us that the infant would soon develop a tension pneumothorax. Indeed, he developed a right-sided tension pneumothorax on his ninth day. He recovered from the tension pneumothorax, but at age fourteen days his chest X-ray showed the soap-bubbly appearance of broncho-pulmonary dysplasia. The infant died a few days later. The February, 1974 issue of the *Journal of Pediatrics* contained two articles reporting on sequelae in surviving infants with neonatal respiratory distress. Harrod *et al.* (*J. of Pediat.* 84:277, 1974) report an incidence of BPD of 15 among 22 severely affected infants with hyaline membrane disease. All 15 infants had abnormal X-rays (interstitial infiltrates and hyperexpansion) at one year. Two of these were symptomatic and these remained symptomatic through ages 2 and 5 years. Of these 15 infants with BPD, 10 had low PaO_2s (56-71 mmHg) on follow-up at 1-5 years. These investigators also report a high incidence of developmental deficiency. Of the 22 infants, 7 demonstrated one or more of the following: abnormal balance or gait, dysmetria, hyperreflexia, neurosensory hearing deficit, developmental lag, failure of the gross motor portion of the Denver Developmental Scale Test, difficulty in figure-drawing and immature attention span. Surprisingly, little difficulty in the nature of subglottic stenosis following endotracheal intubation is being reported, but Harrod and his associates report in this article that 2 of their 22 infants were aphonic on discharge from the hospital, and both remained hoarse at age 4 years. One had been intubated for 45 and the other for only 13 days! Johnson and co-workers, in the same issue of this journal, (*J. of Pediat.* 84:272, 1974), also reported on follow-up of infants surviving after neonatal RDS. They encountered an incidence of 16 cases of BPD among 55 babies. The 16 infants had frequent pulmonary infections and episodes of right heart failure during the first 2 years of life. All improved thereafter. Ten had abnormal X-rays on follow-up at 5 years and 5 had evidence of right ventricular hypertrophy. Ten infants had abnormalities of general neurologic function. Moderate to severe handicaps, consisting of spastic diplegia or hemi-plegia, were present in 6. All in all, 19% of these 55 infants were considered severely handicapped. However, the authors emphasize that 80% were normal or had only minimal handicaps. Table VII gives the survival rates for infants inborn at Pennsylvania Hospital. These survival rates are superior to those reported by Harrod and by Johnson. Our survival rate among all infants with hyaline membrane disease was 64% (96/151). Harrod's was 52.1% (124/138) and Johnson's was 40% (47/118). Our survival rate among our larger infants with severe hyaline membrane disease was 53% (25/47). Our comparable, if not superior survival rates, coupled with our failure to encounter broncho-pulmonary dysplasia, strongly suggests to us that volume and pressure respirators may be offering little in the way of an assist to premature babies with hyaline membrane disease than the simpler-to-use and less invasive negative tank approach and

TABLE VII
RDS Survival Rates (Inborn at Pennsylvania Hospital, 12/17/63–6/30/68)

B.W. (Gms.)	Severe	Moderate	Transient	All Cases
1000–	1/12	1/3	1/1	3/16 (19%)
1000–1250	6/14	4/6	3/4	13/24 (54%)
1250+	25/54 (46%)	23/25 (92%)	32/32 (100%)	80/111 (72%)
All Cases	32/80 (40%)	28/34 (82%)	36/37 (97%)	96/151 (64%)
1250+ (1969–1971)	25/47 (53%)			

Severe RDS score ≥6 for >24 hs. or dying in less than 24 hs. with score 6 or more.
Moderate RDS score 4-5 for >24 hs. or dying in less than 24 hs. with score 4-5.
Transient RDS score 4 or more dropping below 4 by 24 hs. and surviving through 24 hs.

are certainly responsible for more pulmonary injury than the negative tank respirator. We are eager to explore further just what the role of the volume respirator is in this disease.

Another problem still being encountered as the result of neonatal intensive care is retrolental fibroplasia. We have learned, the hard way, that 40% oxygen is not necessarily safe, and we go to great pains to monitor an infant's PaO_2 as long as he is in any increased ambient oxygen concentration. However, to monitor and to control the infant's PaO_2 at levels sufficient for survival without neurologic damage, yet not so high as to cause retinal or pulmonary tissue damage, is not always easy to do. It is particularly difficult in the case of the tiny premature infant who has repeated and severe apneic episodes but has no pulmonary problem and has a good PaO_2 in room air between apneic episodes. It is also more difficult in the infant who begins to recover rapidly from his hyaline membrane disease. Johnson, whose article on sequelae of RDS we referred to earlier, reported that one of his patients was totally blind as a result of grade III retrolental fibroplasia. Our own experience between 1968 to 1972, inclusive, has been 33 cases of RLF among 176 infants who received oxygen and weighed more than 1,500 grams and among infants weighing less than 1,500 grams, some of whom did receive oxygen and some of whom did not (Table VIII). None of our cases has resulted in blindness, but many of the infants are myopic and we fear will suffer an increased incidence of retinal detachment in subsequent years. Therefore, the problem of retrolental fibroplasia is still with us, although less frequently in its more severe forms, in spite of all our precautions in regard to the use of oxygen.

More recently, even more effort is being made to save the very tiny or immature infant. The philosophy abroad is that no infant, no matter how immature, should be denied every assist available. More and more articles are appearing in the literature suggesting that if one is able to avoid hypoxia, hyperoxia, hypoglycemia, hyperbilirubinemia, etc. in these infants, they grow up to be fine, healthy, bright citizens. The same articles usually fail to emphasize that it may be very difficult to avoid these problems to which these very infants are so likely to be exposed. A single severe apneic episode can cause severe central nervous

TABLE VIII
Incidence of Active Retrolental Fibroplasia,
Pennsylvania Hospital (1968—72) (48 months)

Birth weight (grams)	Cases	Total RLF	Active Stages 1	2	3	4	5	%RLF
750—1,000	8	6*	3	0	3	0	0	75.0%
1,000—1,500	50	16	9	3	3	1	0	32.0%
1,500—2,000	52	9	5	4	0	0	0	17.3%
2,000—2,500	37	2	1	1	0	0	0	5.4%
Over 2,500	29	0	0	0	0	0	0	0.0%
Totals	176	33	18	8	6	1	0	18.8%

All infants 1,500 grams or less regardless of oxygen therapy, and all infants 1,501 grams or more who got supplemental oxygen.

* Five of these infants received no O_2 whatever and one received 22 hours of only 26% FIO_2.

system injury to such an infant, and all of us doing neonatal intensive care are encountering the problem of the "triumph" of saving the life of a very immature infant only to have that infant turn out to be severely retarded. The March, 1974 issue of *Pediatric News* reports on the findings of Dr. Pamela Fitzharding on follow-up of 118 infants who weighed less than 1250 grams at birth and whose gestational age was 31 weeks or less. Dr. Fitzharding received part of her residency training in Philadelphia at the Children's Hospital. The main thrust of Dr. Fitzharding's paper was that, of the 32 infants followed for a minimum of 5 years, only 2 had major neurologic deficits. However, her "lesser" deficits included 2 children with functional significant retrolental fibroplasia, 16 children with abnormal EEGs, 9 children with minimal brain dysfunction and 10 children with perceptual motor difficulties. The mean I.Q. of all the children was discouragingly low: 88 for boys and 92 for girls.

I think it important to touch briefly on two other problems. One, I think it is important to point out that we have a problem in the concern of some very responsible investigators into the possible long-range harmful effects of phototherapy. Phototherapy is now well established as one form of treatment of neonatal hyperbilirubinemia and is extensively employed in intensive care nurseries. Its use has contributed significantly to the prevention of brain injury secondary to kernicterus and has reduced the need for exchange transfusions. Nevertheless, both the National Academy of Science and the National Institute of Child Health and Human Development are currently attempting to assess both the efficacy and the safety of this form of therapy. There is particular concern over the possible long-range carcinogenic effects of phototherapy, although there has been no evidence of such a harmful effect in the almost two decades that this therapy has been employed. Second, I think it is important to emphasize that this presentation has dealt only with problems arising from post-natal intensive care and has made no mention of fetal intensive care. It should be recognized that neonatal intensive care is a continuum of prenatal intensive care. Intrauterine transfusion of the severly affected erythroblastotic fetus can result in the salvaging of an infant that without this form of intensive care would almost certainly be lost. Nevertheless, such procedures are not without risk, for example, unintentional intrauterine myelograms as the result of

inadvertent misplacement of the marker dye or the misplacement of dye into soft tissues such as those of the knee. Programs of intrauterine transfusions are completed only 31% of the time simply because they so frequently initiate premature labor (Table IX).

TABLE IX
Rh Sensitization Intrauterine Transfusions[1]
62 Cases ΔOD B" or C

Surviving[2] infants	27	44%
Program completions	19	31%
Prom. or PL within 96 hours of IUT	14	23%

[1] Bishop, Weber, Briscoe, 1964—10/7/68.
[2] Through 28 Days of Life.

Finally, I shall close this presentation by stating that I believe:

1. that we are making progress in providing better care for infants with our intensive care nursery programs;

2. that we are aware, sometimes painfully, of the new problems that such programs of intensive neonatal care have created;

3. that we are learning through experience the relative merits, hazards, values of various forms of treatment not previously attempted, and

4. that the greatest promise for further progress is that of a perinatal approach, rather than an isolated neonatal effort.

The Genesis of Black Pharmacists in America to 1900[1]

By ROBERT W. CULP[2]

What will those druggists who tremble at the approach of the large and increasing army of women pharmacists say when they learn that another body of druggists is pushing forward to contest the possession of the field with them? This question was posed to American pharmacists three years before 1900. It was a rhetorical question and served to initiate a review of black American pharmacists (1). It was enunciated at a moment when two profound influences upon pharmacy in the United States were developing simultaneously.

The first of these influences was the emergence of women into pharmacy, which materialized as a consequence of enlightened attitudes toward education for females adopted in the mid-1800s (2). By the end of that century, despite considerable opposition from the public and from male pharmacists, hundreds of college-trained American women were working in retail stores or in the dispensaries associated with hospitals, asylums, convents and homes for the aged.

Concurrent with the influx of women into the profession was the emergence of the black pharmacist into American life. As early as 1873, scarcely eight years after Appomattox, we note in the literature first indications of concern and interest on the part of white pharmacists. At that time, "Pills," a Salisbury, North Carolina pharmacist, inquired in the *Druggists Circular and Chemical Gazette* if it was right for druggists to hire blacks to work in their stores (3). The journal responded unequivocally and stated in part:

> "The day we trust is about ended when men will be ostracized on account of the hue of their faces. The United States Constitution makes all citizens politically equal, and it further makes the black man everywhere throughout the whole country a citizen . . . . Let all have access to proper education and employment, and do not abuse people of any color . . . for not knowing as much as others who happen to have had better opportunities . . . . Let us have in life's contest 'a fair field and no favor'; then let the champion's belt go to the best man!"

In the ensuing years, interest in the subject of black pharmacists was noted with increasing frequency in the literature. For example, in 1884 the *American Druggist* editorialized against the proposed erosion of a black pharmacy student's civil rights by his classmates at the National College of Pharmacy (4). It was noted by the *Pharmaceutical Era* in 1895 that a black pharmacist from Alabama had been proposed for membership in the American Pharmaceutical Association and the candidate duly elected (5). One year later the same journal reviewed a Supreme Court decision involving the right of an Illinois druggist to sell or refuse to sell soda water to a black man (6).

Although there were only small numbers of black pharmacists active in America before 1900, their influence upon the profession was being felt and was a topic for concern and discussion. Like women pharmacists, they were opposed, although hardly for the same reasons. Op-

[1] Murray Gottlieb Prize Essay, The Medical Library Association, 1974.

[2] Levy Library, Mount Sinai School of Medicine, Fifth Avenue and 100th Street, New York, New York 10029.

position to black professionals was bound closely with the concept of black inferiority, as exemplified by the slave. Let us examine the origins of the struggle of the black man to achieve recognition in pharmacy.

The earliest black pharmacists were in fact black physicians who, like many of their white colleagues in North America, owned their own pharmacies. Their antecedents were, of course, slaves. They were the self-trained healers, the barbers who pulled teeth, set bones and bled patients. They were the mid-wives or "old wives" who aided in deliveries, and they were the druggists who dispensed their noxious potions. They were as well the self-trained "root doctors" who healed by means of spells, superstitions and nostrums and the black "doctoresses" on the plantations, skilled in folk cures and midwifery. In addition to all of these healers there were a few apprentice-trained physicians and apothecaries, some slave-born, who practised among their people.

One such man was James Durham, a slave by birth. Durham was born in Philadelphia in 1762 and brought up by Dr. John Kearsley, Jr., of that city. Farmer (7) reports that Durham was taught in the "best master-apprentice manner, learning the principles of pharmacy and therapeutics by the preparation of medicines . . ." Another black professional was Wilcie Elfe, pharmacist of Charleston, South Carolina (8). Elfe was apprentice-trained and managed a drug store in Charleston. During the 1850s he "acquired such an uncommon knowledge of medicines that he concocted a number of patent drugs that were sold throughout South Carolina."

Both the healers and the apprentice-trained black men and women lacked formal education, but this was the lot for most black Americans during the 1700s and early 1800s. However, in the North, and particularly in the District of Columbia, modest efforts were begun to provide elementary education for blacks. Free blacks in the District of Columbia accepted practically the entire responsibility for the organization of pre-Civil War schools. These schools furnished an opportunity for blacks to obtain an elementary education and developed in them a sense of duty and responsibility to the community.

Between 1861 and 1872 many additional schools opened. The Civil War had awakened the religious conscience of the nation, and the abrupt collapse of the Confederacy was followed by a throng of missionaries in the wake of the Union armies. Now there were day, night, Sabbath and industrial schools designed to furnish the type of education and training of which black freemen were most in need. The day schools stressed the fundamentals of spelling and reading, while a few schools above the elementary level sought to train blacks for teaching and the ministry. Night schools stressed training in the fundamentals of learning for adults and youths, Sabbath schools provided classes in reading and religious training, and the industrial schools taught sewing and allied arts to prepare women and girls to be homemakers and domestics.

Students who completed the day school programs were expected to prepare to teach. Thus, normal departments were organized. Similarly, the need for theological, preparatory and collegiate courses was manifest, and these schools evolved next. Finally, the difficulty for blacks to secure decent medical care, and the high black mortality rate decreed that institutions for training doctors, dentists, nurses and pharmacists be established. In the period between 1868 and 1900, no less than eight schools were begun in the South to instruct black men and women in one or more of these professions.

The first of these institutions was the

School of Medicine of Howard University which enrolled medical students in 1868 and pharmacy students in 1870. But for many years before this there were isolated examples of black university-trained physicians (7-11). The first black American to earn a medical degree was James McCune Smith, who studied at the University of Glasgow. Smith received his A.B. in 1835, his M.A. a year later, and his M.D. in 1837. After graduation, Smith, a native New Yorker, returned there to begin the practice of medicine. Farmer (12) reports that "he was so successful that he rapidly built up a busy practice, operating at the same time two first-class apothecary shops." This certainly qualifies James McCune Smith to be considered the first formally trained black American pharmacist.

American medical schools were reluctant to accept black students, but two men received medical degrees from Bowdoin College in 1849. Slowly, painfully, other medical schools opened their doors. As a consequence, there were by the early 1850s a handful of black physicians practicing in New York and New Orleans despite a color barrier which forced others to practice abroad. During this period Dr. Peter William Ray, a Bowdoin graduate, established a drug store in the Williamsburg section of Brooklyn in connection with his practice. Ray's medical practice was large and lucrative and his earnings were further augmented from his drug store income. He spoke German fluently and attracted many German patients from all sections of Long Island. Ray was active in the field of pharmacy as well as medicine. Farmer (13) points out that "he was a charter member of the Brooklyn Pharmaceutical Association, in fact, suggested its organization and was for many years its treasurer and only colored member."

There were numerous black physicians who supplemented their incomes by operating pharmacies. Kenney (14) has reviewed the achievements of early black physicians and reported that Dr. L. L. Burwell, a graduate of the Medical Department of Shaw University, operated a drug store in Selma, Alabama in connection with his practice, that Dr. A. W. Dumas had a first-class store in Natchez, Mississippi, and that Doctors H. R. Butler and T. H. Slater operated the drug firm of Butler-Slater & Co., the first drug store owned by black men in Georgia. An 1893 news note (15) reported the opening of a black drug store in Savannah, Georgia by Doctors S. C. Snelson and J. H. Bugg.

Although these medical men performed the pharmacist's function, most black physicians who supplemented their income by supervising one or more apothecary shops were in their own view doctors first and foremost, and as such they appeared to the community in which they worked. It was not these men but the college or university-trained black pharmacists working solely within the drug field who constitute the prime area of interest in this study.

Kremers (16) has pointed out that the number of pharmacists attending lectures in the few American colleges of pharmacy before the Civil War was small and the number of those who passed the examinations was still smaller. Within this tiny group the number of blacks who were trained and licensed was minuscule, and no accurate records of their accomplishments are available. We find in the literature mention of P. A. White, as an 1844 graduate of the New York College of Pharmacy (17), and this is confirmed by the roster of graduates of the College for that year (18). Philip A. White opened a drug store at Gold and Frankfort Streets in New York City in partnership with Dr. James McCune Smith, with whom White had served his apprenticeship. We also note that in 1852 a black student attempted to enroll

in the New York College of Pharmacy, which had been housed in the New York Medical College at that time. In recounting the incident Wimmer (19) states that the Pharmacy School had never made distinctions of race or color but that when the student came to class the Medical College refused to admit him.

Other blacks may have attained the pharmacy degree before the War, but they were few in number and their achievements not noted. Likewise we cannot determine the number of black physicians who operated pharmacies in connection with their practice during the early years of this study. Before the Civil War there were few printed comments about blacks other than reports of runaway slaves or tracts on the abolitionist movement. Neither the slaves nor the emancipated blacks had their own newspapers, journals or scientific associations, and many years elapsed before they appeared. It was not until 1892 that Dr. M. V. Lynk published the first black medical journal in this country, the *Medical and Surgical Observer*, a monthly which flourished for a mere eighteen months. It was not until 1895 that the National Medical Association was organized to represent black physicians barred by the racially exclusivist policies of the American Medical Association. However, the post-Civil War period was marked by increasing numbers of black professionals, and from this time forward a clearer picture of the activity of black physicians and pharmacists can be determined.

One final note concerning admission policies of the northern pharmacy schools towards blacks should be mentioned. Not all doors were opened to them after the War. In the 1890s a young pharmacist, M. W. Rankin, was registered by the Illinois Board of Pharmacy without examination on the basis of adequate experience (20). Rankin owned or managed a pharmacy in Chicago. A patron wished to underwrite Rankin's expenses at a pharmacy school, but when the authorities of the Chicago College were consulted they thought it best for him not to enter their institution.

By 1900 there were about 1,700 black physicians in the United States but only about 200 black pharmacists. The number of pharmacists was relatively small because the black man preferred medicine, partly for its greater honor and respect, partly for its greater remuneration. In some instances the black physician, settling in a community, served as the forerunner to the black pharmacist. If the neighborhood had no apothecary shop it was a natural consequence to suggest that a black pharmacist open a business. However there were situations in which the physician could thrive but not the pharmacist. In that complex triumvirate of doctor, druggist and patient, whether white or black, many conflicting cross currents were extant.

Woodson (21) has reported at length upon these relationships. He notes that in the South certain white physicians preferred to send black patients to physicians of their own race but that the reverse was seldom true. The white druggist, however, would not refuse a prescription written by a black physician; thus, the pharmacist could not expect the patronage of every black customer needing medication (22). Some patients left the black doctor's office to have their prescriptions filled in non-black stores. There was a widespread belief in the superiority of white man's medicines and a clear preference by some for the prosperous, well-stocked look of the white pharmacy. The appearance of many black pharmacies was less appealing for good reason. The lack of capital, together with a reluctance of suppliers to extend credit, produced a racial hardship

which caused the black druggist to make a poor showing against his white competitor (23).

Problems for the black pharmacist were further compounded. Woodson (24) states that the pharmacist might enter a community in which the black doctors had already developed surreptitious business practices with white pharmacists. While the black physician could thus maintain some standing in the white community with few restrictions placed upon his practice, the same circumstances for the black pharmacist were impossible. Then too, the black pharmacist was compelled to maintain the connections he had established with the black physicians in his community. The pharmacist understood that white physicians would not direct their patrons to his store. He perceived that loss of rapport with the neighborhood black physicians might cause his business to fail (25).

Some members of the black community looked upon the black pharmacist with a certain amount of distrust, although generally it was less difficult for the pharmacist to build up a trade with black customers than with white. Black pharmacists found little trouble in securing patronage, because blacks were large buyers of patent medicines and nostrums and because stores kept by black pharmacists were few. There was in fact a demand for black pharmacies in the South. The black patron might have to pay a bit more in "his" drug store but he would not be subjected to bruised feelings when told that although he might purchase merchandise at white pharmacies he would not be served there with refreshments.

The fact was that in many southern cities black patrons could not purchase soda water from "first class" drug stores, and this circumstance was advantageous to the black pharmacist seeking employment. Unfortunately, the highest position offered him in the South was work at the soda fountain with the attendant responsibility for preparing soda syrups. Direct contact with drugs was therefore unavailable, and without it no true knowledge of the business could be achieved. Thus, the black pharmacist was often deficient in training, deficient in capital and deficient in credit. His white competitor was a better business man by background and experience, and was not unwilling at times to steal black trade by employing flattery or by jollying blacks into believing that he was "putting himself down to their social level" (26).

During the post-Civil War period, a limited number of blacks were pharmacy-trained in non-southern schools but the real manpower was derived from professional institutions created expressly for black men and women. In the fields of medicine, dentistry, pharmacy and nursing there were eight such schools which were established as follows:

Howard University, Department of Medicine, Washington, D.C. 1868 to date.

Meharry Medical College, Nashville, Tennessee. 1876 to date.

Leonard Medical School, Shaw University, Raleigh, North Carolina. 1882-1915.

Louisville National Medical College, Louisville, Kentucky. 1888-1912.

Flint Medical College, New Orleans University, New Orleans, Louisiana. 1889-1911.

Chattanooga National Medical College, Chattanooga, Tennessee. 1889-1904(?)[3]

Knoxville Medical College, Knoxville, Tennessee. 1895-1909(?)[4]

University of West Tennessee Medical

[3] No known Chattanooga graduates after 1904.

[4] No Knoxville graduates took State Boards after 1909.

Department, Memphis, Tennessee. 1900-23.

The first of these schools to be thus established was Howard University which opened its doors to all without regard to sex or race (27). The College of Medicine was begun in 1868 with a faculty of five, including one black, and a student enrollment of eight, of whom seven were black. The Dental and Pharmaceutical Colleges were added within a short time. From its onset, Howard was highly regarded by the American Medical Association. Several of the original Howard faculty were recruited from nearby Georgetown University. The financial stability of the institution was made secure by continued government support and subsidy.

At first classes began at five in the afternoon and concluded at nine-thirty; later the school day was extended and classes met from three-thirty to ten in the evening. During the first years of Howard's existence the student body was drawn from the North as well as the South, with a small number of foreign students also attending classes. In March, 1870, at the end of the second session, the president of the university conferred the degree of Doctor of Pharmacy upon James T. Wormley. Wormley had the distinction of being the first Howard graduate, the first graduate to major in pharmacy, and, because his course had not been differentiated from medicine proper to pharmacy until a later date, the first graduate of the Medical Department as well.

Requirements for the Ph.D. were rigorous (28). In addition to having attained twenty-one years of age and having been found of good moral character, the candidate was required to complete two years of apprenticeship, two full courses of lectures (the last of which was to have been taken at Howard), satisfactory examination grades for each year and "an acceptable pharmaceutical thesis in his own handwriting." Interest in the pharmacy course was slow in developing. After Wormley there was one additional pharmacy graduate in 1872 but not another until 1880. However, classes gradually became larger during the 1880s and 1890s. The graduating class of 1900 comprised twelve students.

A considerable body of information has been compiled concerning the makeup of the Howard faculty, the student body and the graduates of the school since its inception. This data indicates that a total of 108 pharmacy students graduated up to and including 1900. Of these, twenty-five acquired degrees both in pharmacy and medicine, one achieved degrees in pharmacy and dentistry, and two students earned degress in all three fields.

From the onset Howard welcomed women students. Information concerning women graduates is incomplete, but we are certain that fifteen women completed the pharmacy course and were graduated by 1890 and that there was one woman graduate in 1896 and another a year later. The 1897 graduate and class president was Mrs. Jilia P. Hughes Coleman. This enterprising woman continued her education with post-graduate work at the Philadelphia College of Pharmacy in 1898 and 1899. During the course of her career, Mrs. Coleman was registered in six states and the District of Columbia, owned and managed stores in Pennsylvania and Virginia, entered the field of manufacturing, obtained a patent for a toilet specialty, was a member of the National Negro Business League and served as Pharmaceutical Secretary of the National Medical Association (29).

During the period of this report there were considerable numbers of white students enrolled at Howard. Despite the fact that the number of white students

has been compiled from the minutes of academic sessions, there is no way of determining how many were enrolled in each of the programs being taught. Their numbers ran from a high of seventy-eight in the class of 1872 through a declining pattern that had slipped to thirty-two for the 1899-1900 session (30).

The Central Tennessee College was an outgrowth of one of the many church-schools opened for the instruction of blacks who crowded into Nashville at the close of the Civil War. In 1875, about ten years after the opening of the College, the Medical Department was organized and enrolled its first class one year later. It was the creation of one man, Dr. George W. Hubbard, who devoted his energies singly to the advancement of the black man. The school was named the Meharry Medical College to acknowledge the munificence of five white brothers who helped finance the undertaking. A dental department was formed next, the pharmaceutical course was begun in 1889 (31), and the training program for nursing was organized about 1900. The Central Tennessee College was reorganized at this time as the Walden University, and the medical department became the School of Medicine.

Unlike Howard, Meharry received no government subsidy but was supported by the Freedmen's Aid Society. Although its faculty was mixed, Meharry was founded expressly for blacks. While Howard attracted its student body from the North and South, Meharry's classes were drawn from black Southerners, most of whom had marginal premedical education. Both schools welcomed women.

The first class of the Pharmaceutical Division was graduated in 1890 and comprised a single male student. Roman has stated that there were thirty-six graduates in the first six pharmaceutical classes encompassing the years 1890-95 and that of these, fifteen students subsequently studied medicine (32). Another source places the number of pharmacy graduates by 1897 at forty (33). There is evidence that there were six women graduates during this period. Beginning with the session of 1896-97, the curriculum was broadened from two to three years of study and this program was attended by fourteen students. By 1912 the Pharmaceutical Department had graduated 174 students.

In 1882 the American Baptist Home Mission Society established schools at Raleigh for the education of blacks in medicine and pharmacy. The two schools, a part of Shaw University, were named for Dr. Judson Wade Leonard to acknowledge his considerable financial contribution. The North Carolina legislature also supported the new venture with a gift of land upon which the Leonard Medical Building was erected. The principal instructor of the pharmacy school was William Simpson, a distinguished member of the profession and a past president of the American Pharmaceutical Association. Professor Simpson instructed the students in botany, materia medica and pharmaceutical chemistry, and developed their skills in compounding medicines and in laboratory work. Although Morais (34) reports that the medical school attracted students from every section of the country as well as from Liberia, Trinidad and Jamaica, all twenty-two pharmacy graduates between the years 1893 and 1897 were residents of either North Carolina, Virginia or Florida. The Leonard School of Pharmacy graduated its first student in 1893 and functioned until 1915, during which time it graduated 125 pharmacy students.

The remaining schools merit very brief comments. The Louisville National Medical College opened its doors in 1888 and closed them in 1912. During its abbrevi-

ated existence it had about seventy-five medical graduates. Pharmaceutical training was offered from about 1903 as a department within the State University but little more is known of the course work, the number of pharmacy students who attended the school, or its roster of graduates.

One year after Louisville opened, another school appeared. Flint Medical College was begun in New Orleans with financial aid from the Methodist-Episcopal Church through the Freedmens Aid Society. Flint graduated about 120 medical students until its demise in 1911. Like Louisville, a pharmacy course was offered. The College of Pharmacy was begun in 1903 and closed eight years later, but no record of its achievements is known.

The Knoxville Medical College opened in 1895 and may have lingered until 1909. It had its first nursing department graduate in 1902 and a total of about forty-five medical graduates but offered no pharmacy course during the fourteen years of apparent existence. Another school, the Medical Department of the University of West Tennessee was, like Knoxville, short-lived and offered no studies in pharmacy. During twenty-three years of activity from 1900, this school had about 265 medical graduates.

The U.S. Grant University included under one charter and Board of Trustees the institutions previously known as the Grant Memorial University of Athens, Tennessee and the Chattanooga University of Chattanooga, Tennessee. A department of medicine was announced for the fall of 1889 and was to be known as the Chattanooga National Medical College (35). The *Yearbook* for 1892-93 notes the existence of professional schools of medicine, pharmacy and dentistry. The *Pharmaceutical Era* of May 1, 1893 called the pharmacy school the Pharmaceutical Department of Grant University but the *Yearbook* cites the school as the Chattanooga College of Pharmacy. The faculty roster numbered five including two Ph.G.'s. By 1895 the faculty had increased to six and an equal number of students were enrolled. Along with the six pharmacy students there were 116 in the school of medicine, but beyond this information little else is known. If the class of 1903-04 in medicine had only nine students as Morais claims (36), the decline in enrollment was indeed precipitous.

Of the eight institutions reviewed, only Howard and Meharry survived; the others all ceased operation during the early 1900s. Why did these medical schools and their departments of pharmacy cease to exist? By 1910 Abraham Flexner had completed a survey of medical education in the United States and Canada for the Carnegie Foundation. He had visited each of the eight schools for blacks except the Chattanooga school which had apparently closed by that date. In his report Flexner (37) stated that while Meharry in Nashville and Howard in the District of Columbia were worth developing, the others were at that moment in no position to make any contribution of value toward quality education. In his words

> "Flint at New Orleans, Leonard at Raleigh, the Knoxville, Memphis and Louisville schools are ineffectual. They are wasting small sums annually and sending out undisciplined men, whose lack of real training is covered up by the imposing M.D. degree."

The formula for establishing a medical college during this period was so simple that duplication was not difficult. Instead of a few good schools for blacks, there were many inferior ones. The end of these schools came quickly. Roman (38) enumerated his reasons for their demise:

> "The Chattanooga venture died of inanition; the one at Knoxville was voluntarily closed by its promoters in the interest of medical stan-

dards; Flint followed the same course. Louisville died of natural causes. The one at Memphis was slowly strangled to death because of State Medical Laws that left its graduates nowhere to practice."

When the medical school failed, its pharmacy department, poorly attended and inadequately financed, quickly followed suit. These schools were abortive efforts made during an era marked by a never ending succession of repressive measures for blacks both by custom and by legislation. Personal attacks on black citizens were common; lynchings, burnings and Ku Klux Klan attacks were frequent occurrences. The legal system was turned against them. Disenfranchisement, poll taxes, grandfather clauses, peonage, separate travel accommodations and segregated, inferior schools were forced upon an impotent people. Tenancy and share-cropping systems robbed them of their meager earnings. Yet despite all of these repressive measures, black men and women in small numbers found a way to attend professional schools, however inferior some may have been.

We have noted briefly that opposition to the black pharmacist was rooted in the encompassing concept of white superiority. Racial schism in pharmacy was noted editorially in 1897 as follows (39):

"That there is a most decided objection on the part of the Anglo-Saxon American citizen to meeting the "brother in black" in the close and sometimes confidential relations which exist between druggists and their patrons, there is no question; and there are few, if any, now left who will pretend to say that this is not true in portions of the country cut off by imaginary, geographical lines from other portions in which it is true. The merits or demerits of this fact possess no more interest for druggists than they do for other people, but that the fact exists has a direct bearing on the status of pharmacy."

The editorial further emphasizes that in addition to white opposition, the black pharmacist will find that his own people will look upon him with a certain amount of distrust. It notes that after a while he may be able to overcome the antipathy which the Anglo-Saxon American has toward him but the process is a slow and discouraging one. The personal attitudes of several of these pioneering pharmacists has been obtained by direct interview (40) and serves to convey to us their sense of accomplishment, their frustrations and their aspirations.

Apparently Northerners were the least hostile to the black pharmacist. T. H. S. Pennington, an unschooled pharmacist, worked in New York State from the 1850s into the 1890s. When seeking employment the nature of his reception was varied. "Some were curious, many were friendly, others were curt, and a few were insulting." Pennington's experiences with the trade were favorable and as a manager and employer he claimed he had "always received due consideration, and had frequently received recognition from sources from which it was least expected."

Frank M. Douglass of New Bedford, Massachusetts was able to conduct a successful business. His efforts to have his store clean, quiet and attractive, to be unfailingly courteous and to strive to meet the wishes of his patrons had its desired effect. "The best people of the city have certainly been as generous with their patronage of me as with my competitors in business."

In Baltimore, Maryland the problems of the black man in pharmacy were enunciated by Howard E. Young, a Howard graduate. Young decried the scarcity of work even after graduation. The demand was for proprietors rather than for clerks. But Young noted the zeal and determination with which some of his "ranks" were blessed and was heartened by it. "I feel that I can with plausibility state that the time is not very far in the future when the Afro-

American pharmacist will be at least fairly well established in this country."

In North Carolina, J. A. Dodson was both manager and prescriptionist of a Durham Pharmacy. Looking back upon five years of work, Dodson noted that when he started in business, people wondered at his venture and prophesied his downfall. He had to contend with the selfish, ignorant black and the ignorant poor white. Such expressions as "He shall never fill a prescription for me" and "What does he know about putting up medicine?" were frequently heard. Dodson had few white customers, but this was in part offset by many of his race who went out of their way to patronize his store.

Finally, Charles A. Kelly, pharmacist in Atlanta, Georgia, evaluated his position. After rating his success as "fair" Kelly contended that up to that time (1898) the black druggist had realized very little from the drug business because his heritage had rendered him unworthy and incapable as a professional man in the minds of whites as well as a substantial number of blacks. He observed that ex-slaves were less confident of black professionals than were younger men but saw hope in the fact that the more prosperous whites were beginning to patronize him.

For Charles A. Kelly, his fellow black pharmacists, for all pharmacists, indeed for all men and women of good will, the goal was succinctly stated (41):

> "Our object is more to pave the way for those who may follow than for what we may reap for ourselves. We mean to beat down the prejudice by convincing the black as well as the white man that we have ability as well as ambition to do."

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Thomas Lacey Smith, M.D. (1805–75): A China Trade Physician Who Gave Up the Practice of Medicine

By DOROTHY I. LANSING, M.D.*

If Chester County, Pennsylvania, sent forth to Kentucky a John Filson to write a history of Kentucky (1) she also sent forth to the same area Thomas Lacey Smith, M.D., a generation or more later, in 1839 (2). Dr. Smith, who gave up his medical practice completely and became not only part-owner of the *Louisville Democrat* but a fighting editor only too willing to tilt in print with George D. Prentice of the *Louisville Journal* (3), crossed the Ohio River in the 1840s and became an Indiana politician, lawyer, author, and Indiana Supreme Court justice. Yet, he is not even listed in the *Dictionary of American Biography*.

Thomas Lacey Smith, born in Philadelphia on March 23, 1805, was the son of the eventual builder (in 1809) of Dover Forge in New Jersey, Thomas R. Smith and his wife, the former Eliza Lacey, at a time when they dwelt temporarily in Philadelphia. His mother, Eliza Lacey Smith, was one of the three daughters of General John Lacey and Anastasia Reynolds Lacey of New Jersey. Henry W. Smith, a prior son of Thomas R. Smith and brother of Thomas L. Smith, was their favorite grandchild. General Lacey, "The Fighting Quaker General," spent his post-war life building and operating several New Jersey iron forges and would build Ferrago Forge five or six years later, in 1809-1810, on Bamber Creek in New Jersey at about the time his son-in-law, Thomas R. Smith, was building Dover Forge nearby. Both Lacey's forge and Smith's forge were built in what is now Ocean County just a few miles west of Tom's River, New Jersey (4).

General Lacey died in 1814 and his wife Anastasia died not too long afterwards and, by the terms of General John Lacey's will, his only son, Thomas Reynolds Lacey, was to inherit Ferrago Forge plus the General's interest in Pemberton Forge, provided that equal and substantial cash settlements could be made to the three Lacey girls, all married: Jane Lacey Hough (Mrs. Jonathan Hough), Catharine Lacey Darlington (Mrs. William Darlington), and Eliza Lacey Smith (Mrs. Thomas R. Smith), the latter being the mother of our Dr. Smith, the judge. However, no payments could be made; so the three girls and their husbands became the owners of Ferrago Forge (5).

After the War of 1812 came the American version of the worldwide economic depression with its panic of 1819. In Europe, the resultant poverty and malnutrition and disease were severe (6). The Anglo Saxon world of Western Europe literally packed up a portion of itself, as a result, and moved to Canada and the United States, racing to the cheap lands of the Middle West. The New Jersey bog-ore iron industry based on local shallow iron ores (the bog-iron pits became cranberry bogs), oyster shells for flux, and charcoal from the abundant forests dwindled to nothing (7). Kitty and William Darlington bought up General Lacey's lands in Columbia County, Pennsylvania, to go into the iron business there but sold them in 1822 (8). Smith's Dover Forge fell on hard times; Ferrago Forge burned down

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Fig. 1. Portrait of Judge Thomas Lacey Smith. (Courtesy of the Supreme Court of the State of Indiana.)

in 1824; and, although William Darlington went to New York City to sell what was left, the age of Jersey bog iron was gone and no one would buy Ferrago Forge. The Houghs, the Darlingtons, and the Smiths then made what was tantamount to a rent-purchase deal with the man who was renting the facility at the time of the fire. For the remaining and fascinating story of Ferrago Forge, the reader is referred to that 1931 classic by Charles S. Boyer, *Early Forges and Furnaces in New Jersey*.

While all this disturbing commercial activity was going on, young Tom Smith reached his seventeenth year and was sent to West Chester, Pennsylvania, home of his uncle-by-marriage, Dr. William Darlington (1782-1863) (9). Darlington, a man of many parts, was later to complete his long and useful life as a renowned botanist; in fact, in a few short years, he would almost give up the practice of medicine. But now, in July of 1822, he took on Thomas Lacey Smith as a medical apprentice and also Wilmer Worthington, a local boy, son of a prosperous West Chester tavern-keeper. To Worthington *père*, the charge for such an apprenticeship was $150.00, or $50.00 more than most local physicians charged for a medical apprenticeship, because of the elaborate complexity of William Darlington's very fine personal medical and

scientific library. The charge for Thomas Lacey Smith was nothing.

Dr. Darlington has left no comment or record on Dr. Smith, who was a Jackson man while Darlington became anti-Jackson or Whig. Smith went on to obtain his M.D. degree at the Department of Medicine of the University of Pennsylvania in 1825, writing his thesis upon the subject of a typhoid fever epidemic recently observed by him at the Philadelphia Alms House. Since Gebhard and Pennock and Stillé obtained medical fame in 1838 with their statistical differentiation between typhoid and typhus fever using the inmates of the Philadelphia Alms House, Lacey Smith's handwritten "Account of the Typhoid Fever Which Prevailed at the Alms House in Philadelphia in The Spring of 1824 written as an Inaugural Thesis by Thomas Lacey Smith of Pennsylvania, Member of the Philadelphia Medical Society, Presented November 6, 1824" is most interesting to read (10). Its thirty-five pages glow with human commentary: "At this time, it [the fever] prevailed pretty extensively, especially in the Black's lying-in ward, a dirty and ill-ventilated garrett." Smith's faculty preceptor (unidentified) remarked in pencil that Smith's work was "rather too speculative for the subject as a practical one—but interesting and ingenious—Passed."

Since, in short, all that Lacey Smith said was that the disease was caused by filth and that the people who had it had been living in damp and dirty cellars (11), it is intriguing to guess why a faculty member denounced such remarks as too speculative! After listing the therapeutic routine and remarking that it was very obvious that the less the physician did the better, Smith concluded by saying, "The neglect or ignorance of uninterested nurses rendered the chance of recovery very precarious, [and] the place of the physician was to moderate nature's vigorous actions against disease."

After graduation, Dr. Smith may have set up shop to practice medicine in Easttown Township, Chester County, some 10-12 miles to the east of West Chester, or he may immediately have gone to sea; for he now found time to write his three-part novel, *The Chronicles of Turkeytown*, which was published by R. H. Small of 65 Chestnut Street, Philadelphia, in 1829. It is a saga of small-town America that is disturbing to the American historical dream, for even the natural phenomenon of young people falling in love is portrayed as productive of small-town hatred and jealousy. As for the small town practice of medicine, his descriptions are satirically devastating while proclaiming calomel and opium to be the Samson and Hercules of modern medicine.

Whether or not Dr. Smith, by reason of his *Turkeytown Chronicles* (wherein he took the *nom-de-plume* of "Jeremy Peters") became the friend of well-travelled men is not known. He took to the sea, specialized in the China trade, and became, it is said, a close student of the Chinese people for almost the better part of a decade (12).

Finally, the lure of the Orient began to pall. Dr. Smith returned to the United States and was married to Anne M. Evans of Chester County, Pennsylvania, daughter of William B. Evans, in the office of Mayor John Swift of Philadelphia in the fall of 1836 (13). In 1839, they moved to Louisville, Kentucky. One of his obituaries states that, after the China trade years, he practiced in Chester County in 1836-39 and also was Chester County's man in the Pennsylvania State Legislature where he began to admire the power of the legal profession (14).

Dr. Smith tarried in the area called the Falls of the Ohio for several years, probably until 1845 or so, and then crossed

Fig. 2. A drawing of Judge Smith's house in New Albany, Indiana. (Courtesy of the Indiana Historical Society Library.)

the Ohio River permanently to center the remainder of his long life at New Albany, Indiana—some thirty-four years.

Dr. Smith died on January 23, 1875, and was buried in New Albany Cemetery through the Episcopal Church, although the Episcopal Church death-book lists his religion as "Spiritualist" (15). This particular death listing was brought to our attention by Dr. William Garner, Jr., of New Albany, Indiana, and was the first concrete evidence of the Judge's age span for it gives his age as 70, thus making his birth year 1805 and enabling us to backtrack with ease and verify data (16).

While the original Smith family of New Jersey produced notable offshoots such as John Jay Smith (17) and Provost William Smith of the University of Pennsylvania, there is no evidence yet of such lucky familial relationships to fall back upon in Thomas Lacey Smith's life trials. In the financial squeeze after 1819, his father had lost not only Dover Forge, but also his mother's inherited interest in Lacey's Ferrago Forge and when seventeen-year-old Thomas had been sent to West Chester, Pennsylvania, in 1822, to become a medical student in the farm household of returning ex-Congressman William Darlington, M.D., Dr. Darlington had become the new owner of Ferrago Forge! Dr. Darlington had disliked young Thomas's mother, Eliza Lacey Smith, for having provoked the elder Lacey's hand in 1806 because of the surreptitious visits Darlington

made to see Kitty Lacey in that house in Philadelphia where Judge T. L. Smith was born (18). Yet he offered to train Eliza's son.

However, since young Tom Smith was a talented writer, no doubt he and Dr. Darlington strove together quite well. Sabin records that Dr. Darlington's copy of *The Chronicles of Turkeytown* now resides in the Historical Society of Pennsylvania. Sabin corresponded in the 1920s with a Smith descendant in New Albany, Indiana, to verify Dr. Smith's authorship of this unusual novel that so exemplified American society at that time.

The Chronicles of Turkeytown has three parts: "First Series, Containing the History of a Dreadful Catastrophe"; "The Amors of Dr. Post and Mrs. Pewettle," and "The History of a Tatterdemalion."

Turkeytown was a place name associated with Andrew Jackson, for, in 1815 he had held a Turkeytown conference with the Creek and Cherokee Indians (19). If *The Chronicles of Turkeytown* was written at sea on a slow boat to China, its remarks on the practice of medicine might be construed as a satire on the professional world of Dr. William Darlington. If it was written after a few years of practice in Easttown Township, then it would be a commentary upon his own practice of medicine. I am inclined to think that it could be a satire of Darlington's world since there is no evidence of much contact between the former teacher and the former pupil as the years went by—a good forty years—although his wife, Ann E. Smith, is listed as a contributor to the Darlington herbarium.

These three *Turkeytown Chronicles* contain remarkable descriptions of everyday rural life. The first decribes the rural practice of medicine which, as author Dr. Smith saw it, was the giving of one enema after another by a minor associate, "Dr. Post," while the boss, "Dr. Lavender," handled the *fronts* of people. The second is a satire on the idiocies of the peripatetic British author-traveler of the time, denominated as "Timothy Sharp" but probably patterned on the actual British visitor James Flint who visited West Chester and William Darlington and then wrote about his visit (with much less interest and élan than Washington Irving did about the British in turn-about fashion). The third is a true story of a good boy battered about by misfortune and the human race.

What makes these three tales so intriguing is their remarkable ring of truth. Indeed, Smith felt so strongly about the woebegone castoffs of the time that when he found one in New Albany, he took the young boy (James S. Peake) into his own home and raised him as his own son (20). Hence one cannot help but admire the humanity of the man, Judge Thomas Lacey Smith, M.D. One also wonders if the needs of the rural Cestrian population of 1825-39 so impinged upon constipation problems that the popular necessity of enema-giving simply drove Dr. Smith right out of the practice of medicine and into the arms of the nation's press and the Indiana legal profession, after an eight-year stint of ocean travel to the Orient! Did Dr. Smith, for example, ever write a treatise on Chinese medicine for Americans (21)?

To pick up Dr. Smith's novel is to peek into the past. Our forebears had a better grasp of human nature than we give them credit for; their perspicacity is couched in archaic literary forms tedious to the modern reader and therefore escapes notice. But the following gleanings from Dr. Smith will serve to show what I mean, taken from "The Amors of Dr. Post and Mrs. Peweetle":

Dr. Lavender: "My grand uncle by my mother's side . . . . . a good humoured but whimisical old gentleman, of a dignified and commanding aspect . . . [who] in the course of his practice . . . . [had] found that nurses and old women in general, very often interfered with the regular course of his prescriptions and were sometimes troublesone in proffering their advice when it was not wanted . . . (and) had, accordingly, conceived a sovereign contempt for the opinions of the whole tribe."

My mother: "She was just in that state where a person is said to be neither sick nor well. The principal symptom of illness consisted in petishness and a little shortness of temper . . . ."

My father: "[a] good man [who] had a very peculiar turn of mind . . . his assent to any given proposition depended upon so many contingencies, which never entered any head but his own, that it was extremely difficult to conjecture in what light he might be disposed to regard it. When he had once adopted an opinion, however, he would twist and stretch it, and pile rubbish around it, with an ingenuity that Aristotle himself could scarcely have equalled . . . . When not engaged in these subtleties he occupied himself principally in collecting clam shells and fishes' teeth, dug out of neighboring marl pits, or in some similar pursuits that might happen to be his hobbies for the time . . . ."

Dr. Post: "The most renowned character who ever appeared in Turkeytown . . . [none] other than Mr. Stubbs [named Dr. Post] . . . by his learned friend Mr. Peacock [because] . . . in their practice doctor Lavender was in the habit of managing the front and his coadjutor the back door . . . he could make pills and julaps, bleed, blister, and administer an enema with great dexterity . . . a grace and celerity almost inimitable."

Dr. Post: "Calomel and opium . . . have been called the Samson and Hercules of medicine."

Finally, to sum it up, Dr. Smith writes:

"In our enlightened times, there are many people of good sense in other respects who flock to the miserable habitation of some bleareyed, decrepit, poverty-stricken old woman, whom they believe to be miraculously endowed with power to turn over the pages of the great book . . . . these six penny oracles!"

All of this description, of course, is followed by much comment on the ignorant gullibility of the public, couched in the complicated social minuet of his novel; but such a comment on old women is reminiscent of the doctor's role as legal witness in the great witchhunts of the past; for it was the legal profession, and not the medical profession, that eliminated the fraud and humbug of witchcraft! Strange that old women were such competitors of physicians in 1829. Did old crones and enemas drive Smith out of medicine?

If Dr. Smith—Judge Smith—ever philosophized about leaving medicine, medicine is unaware of it. Of course, along about the same time that Dr. Smith gave up medicine, his mentor, Dr. William Darlington, also gave up medicine for the promise of local banking and railroading, so that even the most biased of historical readers is now bound to conclude that the practice of medicine was then highly unsatisfactory, emotionally as well as financially. No wonder the German botanic physicians and the Thomsonians rushed in to fill the void thus created by such trained-physician dissatisfaction. No wonder Chester County became a veritable stronghold of homeopathic practice wherein many a regular physician became a convert to homeopathic remedies after 1835. It would take simpler souls with little or no training to do the yeoman work of enemaing and puking the sick people of the community. The university-trained M.D. was not all that enthralled to spend his professional life wallowing in bodily effluvia under the guise of "curing" people of their illnesses by such therapeutic measures. For example, the issue of the *Village Record* for September, 1836, which carried the notice of Dr. Smith's marriage also carried an advertisement stating that Dr. Theophilus Klotz would cure persons of diseases which Klotz then listed (22).

The advertisement was a continuous running ad and the good Dr. Klotz authored a book on plant remedies (23) published one year later in 1837.

Dr. Darlington had quit medicine after twenty-six years of practice, one-third of it spend in Washington, D.C. Dr. Smith quit after twelve years of practice. In his old age, after a fall on the ice, Dr. Darlington became the patient-victim of the very therapies he had used as a doctor, and it is recorded that he complained of the misery involved in the debilitating course of therapeutics used by doctors in the late 1850s (24).

It seems totally incomprehensible to a practitioner-historian that our modern academic anthropologists should consider such men as Darlington and his student Smith the "shamans" of their time and try to explain their personal success or local influence on the basis of this supposed medicinal exorcism or shamanism, ignoring the now obvious fact that many of the intelligent, trained physicians left the medical business. There is, of course, simply no prestige in giving enemas on demand. Enema-giving had to be relegated to female nurses or the subordinate female personnel or the helpful female laity before the practice of medicine could progress; for the giving of puking medicines and/or enemas on demand would peg the actual medical practice at a very low social level; indeed, from a business point of view, the procedure of administering an enema was not as shamanistic as current theories would have us believe.

By 1839 we find Dr. Smith joining his brother, that favorite Lacey grandchild, Henry W. Smith (25), near the Falls of the Ohio (Louisville and New Albany). Here, for all intents and purposes, Dr. Smith never seems to have engaged in the practice of medicine again, although he was near two towns very active in founding medical schools. Some readers are probably unaware of the existence of the Medical School of the University of Indiana at New Albany, whose bogus status and bogus diplomas were the work of John Cook Bennett, John L. Riddell, and Chauncey Perkins in 1833 (26). Louisville's medical education history is better known.

As Smith gradually switched entirely to the practice of law (the very law he had learned as a Pennsylvania legislator) at New Albany, Indiana, he took in the famous Indiana governor-to-be, Ashbel Willard, as a law partner in 1844. These two, Willard and Smith, "built up a strong political organization" (27). Although trained by a botanist who was always trading herbarium specimens by mail and packet, former student Smith seems never to have personally added to the Darlington herbarium back in West Chester, Pennsylvania. His wife, Anne E. Smith, was a contributor to the Darlington herbarium, whereas the leading botanist of New Albany, Ashbel Clapp, M.D., is not recorded as a contributor (28).

Active in politics, judge of the Old State Supreme Court of Indiana in 1852-53, Smith's reputation was eventually crushed by his so-called participation in the infamous bank frauds of the time, and his political career went no further. Interestingly, he published two more books—definitely not Turkeytown novels—one in 1850 on the court records of the State of Indiana and the other a textbook on law for school children, which went through several editions after his death (29). He spent the remainder of his long life in the practice of law in New Albany, Indiana, apparently retiring in 1868 at the age of sixty-three because of a long chronic illness, the nature of which is never described. Seven years later he died quietly—much mourned—and lies buried in New Albany Cemetery (now called the Fairview

Cemetery). His children and their lives, although one son became a lawyer also, and that of his wife are at present unrecorded (30). Lacey candlesticks, spoons, tables, and chairs abound in Chester County, but Lacey memorabilia may also be found in Floyd County, Indiana.

The Chester County Historical Society has one letter of Judge Thomas Lacey Smith's written about a point of law to a lawyer of West Chester named William Darlington, a cousin to the physician William Darlington (1782-1863), and it reproduced as follows (31):

Louisville August 29th, (1845)

Dear Sir:

I received yesterday by the hands of Mr. Brookes your letter of the 18th inst. In reply I would say that we have no limitation statues in Indiana differing in principle from those of Pennsylvania. In general all debts are presumed to be paid after the lapse of twenty years, but this could not apply to the accounts of an administrator which have never been settled or, the amount of his liabilities to the heirs and creditors ascertained. If it could, we have the usual exceptions in favor of non-residents. I expect certainly to be in Penn^{a} about the latter part of the next month (September) when I will see you and give you more full information than I could do by letter. I will therefore not attempt to answer your other questions at present, as I presume you would prefer having a personal conversation upon this subject.

I am very respectfully

Thos. L. Smith

Wm. Darlington, Esq.

He is also mentioned several times in letters written by various persons to General I.D. Barnard also belonging to the Chester County Historical Society (32). General Barnard was a local, state, and national politician before he brought on his own early demise by means of alcoholism.

Altogether, Judge Smith, physician-Chinese traveller-lawyer-newspaperman, was perhaps a man born a century too soon. His talents and training would be in high demand today to mediate the two great professions and their mutual financial antagonisms: medicine and the law. A Cestrian medical student and practitioner who emigrated to the Falls of the Ohio and never returned, except to visit, in giving up the vaunted privilege of a medical practice, reduced to the common attributes of the uneducated and the ignorant in his own time, he told us more about the practice of medicine in America in the 1830s than we perhaps would care to know. Thomas Lacey Smith, M.D., belongs in the annals of biography and bibliography of his native land. He deserves to be rescued from oblivion now that almost a hundred years have passed since his death.

Acknowledgment

I am indebted to Miss Dorothy Lapp of the Chester County (Pennsylvania) Historical Society for bringing the delightful little novel *The Chronicles of Turkeytown* to my attention originally and to Mrs. (George) Leona T. Alig of the Indiana Historical Society and Mrs. (Ferd) Stuart Wrege of the Floyd County (Indiana) Historical Society for their help in tracking down Dr. Thomas Lacey Smith's life.

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12. Obituary, *New Albany, Indiana Ledger-Standard*, January 23, 1875. (Courtesy Mrs. Wrege).
13. *The Village Record* (West Chester, Pennsylvania) for September 28, 1836. Courtesy Chester County Historical Society.
14. Obituary listed in ff. 11.
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A Short History of the Medical Women's International Association[1]

By ALMA DEA MORANI, M.D.[2]

It was October 19, 1919, and mankind was recovering from the shock of World War I. In New York City, at the Waldorf-Astoria Hotel, a dinner was organized by the American Women's Hospitals Service Committee of the American Medical Women's Association. Dr. Esther P. Lovejoy, from Portland, Oregon, was a vice president of AMWA and chairman of the AWH Committee and became toastmistress for the occasion. The purpose of the evening was to honor distinguished medical women from different countries who had just returned from war service in France. In addition, the Young Women's Christian Association had called an International Conference of Women Physicians, many of whom had served in medical relief work in various devastated countries. Dr. Esther P. Lovejoy, always ahead of her time, sensed the opportunity of forming an international association of medical women, and the 140 guests from 16 nations agreed with her proposal and passed the motion to organize by acclamation.

Within four days, a Committee of Twelve (Figure 1) was chosen by ballot and empowered to organize the Medical Women's International Association (1, 2).

On October 25, the committee met again and the following officers were elected:

Dr. Esther P. Lovejoy (U.S.A.)—President

Dr. Christine Murrell (England)—1st Vice President

Dr. L. Thuillier-Landry (France)—2nd Vice President

Dr. Kristine Munch (Norway)—3rd Vice President

Dr. Marie Feyler (Switzerland)—Recording Secretary

Dr. Martha Welpton (U.S.A.)—Corresponding Secretary

Dr. Ellen C. Potter (U.S.A.)—Treasurer

The president, Dr. Esther Pohl Lovejoy, explained the objectives of an international association made up of various national societies of women physicians in various countries, formed in order to exchange ideas and unite their efforts for the benefit of mankind. A provisional constitution was adopted, and English and French were declared the official languages of the Association. At that moment only two national associations of medical women existed: the American National Medical Women's Association, organized in 1915, and the British Medical Women's Federation, organized in 1917, and the members of these two groups joined immediately. In order to support the formation of other national societies, corresponding secretaries were appointed from different countries. The countries were: Argentina, Canada, China, Holland, Italy, Japan, Scotland, Serbia, Sweden and Uruguay. About two hundred Americans joined, and the first Life Member was Dr. Mary B. Hussey, said to have been the first baby delivered by Dr. Elizabeth Blackwell, the first woman to graduate in medicine in the U.S.A.

The second meeting of these medical

[1] Section on Medical History, The College of Physicians of Philadelphia, January 6, 1975.

[2] 3665 Midvale Avenue, Philadelphia, Pennsylvania 19129.

Committee of Twelve Who Organized the Medical Women's International Association

Fig. 1. The Committee of Twelve who organized the Medical Women's International Association.

women occurred at the University of Geneva, Switzerland, in September, 1922, and was organized by two sisters in France, Dr. L. Thuillier-Landry and Dr. Long-Landry, who united efforts to gather eighty medical women from fourteen countries (Figure 3). Four of these were now presidents of their national societies, namely: Italy, Great Britain, France and U.S.A. Delegates came from many European countries, including Armenia, Austria, Denmark, Poland,

Fig. 2. Dr. Esther Pohl Lovejoy, first president of the Medical Women's International Association.

Russia, Yugoslavia, as well as Uruguay. Welcomed by the dean of the medical faculty, members delivered scientific papers on public health, child welfare, illegal traffic in narcotics, and other matters of international medical interest. The constitution was amended and adopted, and the elected officers continued to serve until 1924. The Association's business office was located in New York City, in the headquarters of the American Women's Hospitals Service, for the first five years, during which period physicians in twenty countries became affiliated.

MWIA held its third meeting in London in July 1924, with an attendance of two hundred fifty women physicians from fifteen countries. The British Medical Women's Federation extended gracious hospitality and produced an excellent and inspiring scientific program. At this first council meeting, duly elected delegates of constituent national organizations presented gratifying reports of the first five years' activities. Dr. Esther Pohl Lovejoy presided until Lady Florence Barrett (Great Britain) was elected the new president. It was recorded that Russia sent Dr. Vera Dmitrievna Lebedeva, representing 6,000 Russian women physicians, who comprised part of the Union of Medical Workers in Moscow. Unfortunately, the Russian women physicians, while constituting the majority of their medical profession, were not permitted to organize a national association.

The organization continued its slow but steady growth, with membership of 2,000 at the close of 1924. During the next thirteen years, there were three general meetings (congresses) and three council meetings held in various countries. Meetings were always characterized by careful selection of medical topics, multi-language rapporteurs, and questionnaires summarized and presented for discussion. The great number of reports accepted and filed revealed a host of medical matters that especially interested women physicians.

It soon became evident that delegates appreciated the educational value of exchanging ideas and visiting hospitals and places of universal interest. They also enjoyed the privileges extended to them as important visitors, frequently greeted by officers of allied medical organizations and government officials. Many members reported that they felt enriched by the scientific programs and the travel experience and had gained knowledge of the history and cultural background of the host country. Always Dr. Esther P. Lovejoy was there to guide, encourage and inspire, and she frequently enlivened meetings with comments on the political peculiarities of the

Fig. 3. The second meeting of the Medical Women's International Association in Geneva, Switzerland, in 1922.

times. Her remarkable experiences as president of American Women's Hospitals Service (her relief organization) had taken her to thirty countries where she established many temporary hospitals and clinics for refugees, the sick and the poor. During this period Dr. Lovejoy toured America, lecturing and appealing for medical aid funds. She also managed to write four books, the last of which, entitled *Women Doctors of the World*, published in 1957 (U.S.), remains the best compilation of the lives of pioneer and prominent medical women throughout the world (3).

Below are listed the time, topic and location of various congresses, as well as the past presidents of MWIA:

Year	*Topic*	*Location*
1924	Maternal Morbidity.	London, England
1926	Tuberculosis and Pregnancy.	Prague, Czechoslovakia
1928	Medical Measures for the Protection of Children.	Bologna, Italy
1929	Sex Instruction for Children & Adolescents: Analgesia in Midwifery.	Paris, France
1934	Physical Education, Birth Control.	Stockholm, Sweden
1937	Cancer Prevention in Women: Maternal Mortality and Abortion.	Edinburgh, Scotland

1947—Responsibilities of Medical Women in Reconstruction of the Post-war World.	Amsterdam, Holland
1949—Diseases of the Housewife.	Hameenlinna, Finland
1950—Anemia in Women, Pathology and Hygiene of Housework.	Philadelphia, Penna. U.S.A.
1954—The Menopause.	Gardone, Riviera
1956—Problems of Married Women Working Outside the Home.	Burgenstock
1958—The Adolescent.	London, England
1960—The Old Woman.	Baden Baden
1962—Parent Education and the Medical Practitioner.	Manila, P.I.
1964—Preventive Aspects of Chronic Diseases.	Sandefjord, Norway
1966—Optimal Utilization of Medical Women Power.	Rochester, N.Y., U.S.A.
1968—The Hungry Millions.	Vienna, Austria
1970—The Health of Women in Industry.	Melbourne, Australia
1972—Toxoplasmosis.	Paris, France
1974—Genetic and Environmental Factors Which Affect Human Health	Rio De Janeiro, Brazil

MWIA Presidents

1919—24	Dr. Esther Pohl Lovejoy	U.S.A.
1924—29	Lady Florence Barrett	Great Britain
1929—34	Dr. L. Thuillier-Landry	France
1934—37	Dr. Alma Sundquist	Sweden
1937—47	Miss Louisa Martindale	Great Britain
1947—50	Prof. A. Charlotte Ruys	Netherlands
1950—54	Dr. Ada Chree Reid	U.S.A.
1954—58	Dr. Jolanda Tosoni-Dalai	Italy
1958—62	Dr. Janet K. Aitken	Great Britain
1962—66	Dr. Fe del Mundo	Philippines
1966—68	Dr. Lore Antoine	Austria
1968—70	Dr. Lorna Lloyd-Green	Australia
1970—72	Dr. Leone Hellstedt	Sweden
1972—74	Dr. Alma Dea Morani	U.S.A.

By 1929, twenty-one national branches had been organized, and three affiliates, the British, Germans and Americans, were publishing their own medical journals to record their activities. It was not until 1937 that the first historical record of MWIA was produced, written by Miss Martindale of England. This past president managed to maintain communications during the nine-year break of association activities (1937-46) occasioned by events surrounding World War II. At this meeting held in Edinburgh, Scotland, it became apparent that women doctors of the world had now become acquainted, and through MWIA had successfully and substantially cooperated in their post-war medical relief

work. Emergency medical services were supported by the British Medical Women's Federation, the French Medical Women's Association, and the War Service Committee of American Medical Women's Association. Many women doctors of other countries aided in the general plan which had the common purpose of conserving talent and funds, promoting friendly relations and insuring results. War records of some of these women physicians will remain a source of pride and inspiration to future generations of medical women.

Post-war influences and pressures followed, and during the next decade many affiliates ceased communications because of political changes. Burma, Poland, Uruguay, Yugoslavia, Hungary, Czechoslovakia, Portugal, Lebanon and Roumania kept a few individual members on the membership rolls but soon lost contact with MWIA.

In 1947, the Association met in Amsterdam. Members discussed the "Responsibilities of Medical Women in Reconstruction of the Post-War World." They believed that medical women had always worked for health, decent living and peace, and felt that as physicians they could exert some influence on their patients and patients' families. The newly elected president, Dr. Charlotte Ruys of Holland, was professor of microbiology at the Medical University of Amsterdam and had been recognized for her leadership in underground activities during World War II. Prof. Ruys accepted the invitation of the Finnish Medical Women to hold a council meeting in Hameenlinna, Finland, in 1949, and at this conference medical problems associated with housework became the theme for a medical symposium.

In 1950, the sixth congress met in Philadelphia, Pennsylvania, U.S.A., with headquarters at the Woman's Medical College of Pennsylvania, which was then celebrating its one-hundredth anniversary. Delegates from eighteen affiliated countries came to discuss "Anemia in Women" and the pathology and hygiene of housework. The press mentioned that this was the first time a medical group had given such importance to such a subject. Dr. Ada Chree Reid, an internist from New York City, was elected the new president, and members of MWIA and WMC joined in the opening ceremonies of the 101st year of the medical college in America that was training solely women. Members appreciated the opportunity to renew old friendships and to form new ones, and Dr. Esther P. Lovejoy captured the audience with her speech at a gala banquet. A few months later the first historical sketch of MWIA was written by Dr. Lovejoy and Dr. Ada C. Reid, and this paper remains an accurate report of the activities of the Association from 1919 to 1950. Unfortunately, it was not widely circulated, although published in the *Journal of AMWA*, January, 1951, and widely read by American women physicians.

In 1954, the seventh congress took place at Gardone, on Lake Garda, Italy. Three hundred members from twenty-one countries attended, and an emblem for MWIA was offered by the Italian MWA. A silver medallion bearing the inscription *Matris Animo Curant* with the figure of Hygeia was accepted and still serves the Association as its emblem.

Bedford College, London, England, housed the eighth congress which was opened by the Countess Mountbatten of Burma, on July 16, 1958. At this meeting five new associations joined: Argentina, Japan, Peru, Vietnam and South Korea, while observers came from Hungary, Poland and Roumania. President Jolanda Tosoni-Dalai of Italy reported on the Association's relations with the World Health Organization and World Medical Association, announcing that

Fig. 4. The emblem of the Medical Women's International Association, adopted in 1954.

MWIA had been granted "Consultative Status as a Nongovernment Agency" to the United Nations. A reception was given members at the University of London, hosted by the Queen Mother Elizabeth, then Chancellor of the University. The Federation of British Medical Women had developed a fine scientific program on "The Adolescent," and the congress was most successful.

1962—this was the year MWIA celebrated its first congress in Manila, The Philippines, later recalled as an outstanding scientific and social success. Because the First Lady of the Philippines was herself a physician, 513 congressionists were officially invited to the President's Palace and received by President Macapagal and his charming wife. Philippine medical women proved themselves capable organizers, and generous hospitality was extended in their homes, as well as side trips to tourist attractions. Before the congress closed, Brazil became an affiliate and proudly announced the printing of the world's first stamp honoring a woman physician.

The Association held its tenth congress in 1966, in both Rochester, New York, and Queenston, Canada, thus permitting members to visit two countries in North America. The joint arrangement required careful planning, and the scientific topic was a socio-political one that aroused great interest, for it was concerned with "The Optimal Utilization of Medical Women Power," its supply and demands in various cultures and countries. Dr. Marion Fay, Philadelphia, Pennsylvania, U.S.A. (then dean of Woman's Medical College of Pennsylvania) summed up the papers and stressed the increasing problems and grave responsibilities of women physicians all over the world. Dr. Fe del Mundo, who was then president, received the Ninth Blackwell Award in impressive ceremonies at the Hobart and William Smith College in Geneva, N.Y. The General Assembly approved a revised statutes and by-laws and adopted a new constitution.

1968—the eleventh congress was held in Vienna, Austria, with Dr. Lore Antoine of Vienna as president. Meetings were enjoyed in the Hofburg, the former Austrian Imperial Palace, and the topic, "The Hungry Millions," brought many observers from other international medical groups. A record 700 participants from 24 affiliated countries arrived and

participated in the carefully scheduled program. The Executive Board, having long realized the need for a larger and more permanent headquarters, now established an office in Vienna. Here a secretariat under the direction of Dr. Martha Kyrle (once the First Lady of Austria), brought efficiency, status, and a knowledge of protocol to the Executive Council. This office continues to serve the Association, communicating with all affiliated national associations through national corresponding secretaries. The MWIA headquarters now maintains contact with executive officers, all NCS, the United Nations, and a number of international societies involved with matters of health.

1970—Melbourne, Australia, was the seat of the twelfth congress. This was the golden jubilee year and members celebrated the 50th anniversary with appropriate festivities capably organized by the Australian president, Dr. Lorna Lloyd-Green, and the Australian MWA. On this exciting occasion, the membership paid tribute to its founders for their foresight and tenacity of purpose. The Association had become fifty years old on October 19, 1969. A presentation of national flags to the president was performed with simple dignity to the delight of an enthusiastic membership. A portion of the program was the viewing of a series of slides showing notable persons and events in the organization's history. Also shown were photos of the first women medical graduates of member associations. These portraits of distinguished medical women of the past disclosed many remarkable personalities, some of whom had been the foundation stones, the planners, the workers, the creative talents of the organization.

1972—Paris, France, hosted the thirteenth congress with a program on a single topic, "Toxoplasmosis." Dr. Leone Hellstedt, from Sweden, was president and members were officially hosted by the president of the French Senate in the beautiful Luxemburg Palace. The congressionists much enjoyed French hospitality and toured the famous sites of Paris. At the close of this congress a number of resolutions dealing with toxoplasmosis were accepted and distributed to national associations and their local governments.

1974—the United Nations declared 1974 "World Population Year," and the association participated with a regional program in Manila. This was held January 6-11, at the Gloria Hotel. Because of persistent efforts by the president, Dr. Alma Dea Morani, the Association had received its first large grant of fifty thousand dollars. The grant came from the United States, through the cooperative efforts of U.S. Agency for International Development and Family Planning International Assistance Fund. The money went to the Philippine affiliate, with the sponsorship of MWIA, and made it possible to organize the first Asian Regional Conference on Family Planning. With amazing efficiency, the Philippine medical women organized and produced an excellent symposium, inviting not only members but non-members and midwives as observers, all interested in problems of population explosion and its control. Registration figures rose to 476, as women physicians came from Europe, North America, South America, and sixteen Asiatic countries, representing such isolated areas as Ceylon, Nepal, Indonesia, Bangladesh, Korea, Singapore, Taiwan, Vietnam, and several remote Philippine islands. A past president, Dr. Fe del Mundo, opened the conference, declaring its theme to be "Mobilizing Medical Women for Family Planning."

Ten plenary sessions were held and several family planning experts arrived to lecture the enthusiastic, colorful audience. This meeting was considered so

Fig. 5. The 1972 congress of the Medical Women's International Association, held in Paris, France.

important that a documentary film was made, showing the impressive and elegant opening ceremonies, with the eloquent keynote speaker, Mrs. Imelda Marcos (First Lady of The Philippines), who addressed the huge audience on "The Moral Dimensions of Family Planning." Workshops, field trips to hospitals, panel discussions and gala social activities were combined with generous Philippine hospitality, and all present remember this exciting event with pride and satisfaction.

1974—Brazil was the venue of the first congress in South America, using the beautiful city of Rio de Janeiro for the fourteenth congress. This meeting also exceeded expectations and was capably organized by a small group of Brazilian medical women from Sao Paolo and Rio, who proudly stated that 34 affiliated countries sent 455 delegates to hear 42 scientific papers on the topic, "Genetic and Environmental Factors Which Affect Human Health." Members were given a reception by Governor Guanbara of Brazil, and everyone enjoyed Brazilian tourist attractions.

A short family planning conference formed the second part of the program, and a stimulating innovation was attempted. Because so many registrants were not familiar with the English language, six languages were selected and simultaneously employed in six different workshops in adjoining lecture rooms. The languages used were English, French, German, Japanese, Portugese and Spanish. Dr. Fe del Mundo offered an excellent final report in English. This multi-language conference was a unique experience for the Association and is believed to be a milestone in international medical programs. A summary of the

Fig. 6. The first Asian Regional Conference on Family Planning, organized by the Philippine Medical Women's Association, with sponsorship of the Medical Women's International Association, held in Manila in January, 1974.

congress papers was published in English and French and appropriately distributed.

1974—at the close of the Rio congress, it was announced that the fifteenth congress would be held in Tokyo, Japan, in August, 1976. This news was enthusiastically received. The scientific topic, "Viral Diseases and Their Sequelae," was chosen, as was the new president, Dr. Harumi Ono of Tokyo, Japan.

This past history does not put on record all the true accomplishments of this Association. It should be appreciated that the outlook of the twelve founders was far ahead of its time and that their task was not an easy one. One recognizes the historical importance of those determined women who consistently managed to meet, stimulate, encourage, aid, and campaign for international contacts among prominent medical women on a worldwide basis. Various reports indicate that these women physicians were well aware of the power in other women's organizations, for they maintained frequent contacts with the International Council of Women, International Federation of University Women, the Business and Professional Women, the Soroptimists International, and the Open Door International. Albeit slowly, the Association gradually gained recognition as it acquired consultative membership with the following organizations: (*WMA*) World Medical Association, (*ECOSOC*) Economic and Social Council, (*UNICEF*) United Nations Children's Fund, (*WHO*) World Health Organization, (*UNESCO*) United Nations Educational, Scientific and Cultural Organization, (*CIOMS*) Council for International Organizations of Medical Sciences. Occasional contacts were also maintained with (*FAO*) Food

and Agricultural Organizations of the U.N., (*ILO*) International Labor Force, League of Red Cross, International Planned Parenthood Federation, International Hospital Federation, Royal Society of Health, (England), and the International Union for Health Education.

It must be emphasized that the original aims of MWIA expressed in 1919 remain the same today. Their interpretation has undergone timely change. The aims are:

1. To provide a means of communication among medical women in different countries, and to promote the general interest of medical women, and to further friendship and understanding among all medical women.
2. To afford opportunities for medical women to meet at stated times to confer upon questions relating to the health and well-being of humanity and upon problems particularly related to women, and to secure their cooperation in matters connected with international health.

MWIA believes itself to be the oldest international medical association in the world that has consistently held council and congress meetings. The group survived because of dedicated leadership that believed in their cause, that an international confederation of medical women was needed so members could present original scientific papers and discuss topics of particular interest to women physicians. Today, when women physicians have substantially achieved recognition based on their ability and not merely on legislation, it can be presumed that the Association will continue to prosper. Today, as more women enter the medical profession, we find that women physicians are demonstrating their increasing strength vocally and legislatively, as well as in print. Founded in 1919, with two national associations and 300 members, MWIA can now boast of 38 national associations and a membership of 12,000.

It was my privilege to serve as the 14th president, from 1972 to 1974, after serving two terms as regional vice president for North America. I enjoyed the challenge and its unexpected rewards, and my efforts were reasonably successful. The support and cooperation of my Executive Council was significant and the required travels to many affiliated countries enriched my life. The fine loyal and lasting friendships formed among women physicians all over the world is possibly the greatest contribution MWIA offers its members.

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Marriage Counseling and the Related Professions[1]

By EMILY H. MUDD, M.S.W., Ph.D.[2]

Man's continuous dissatisfaction with the status quo goads him unceasingly to the development of new approaches and different methods to resolve age-old problems. In turn, problems are not static and they and their solutions stem from multiple cultural influences and personal needs, the scientific milieu, specific motivation, and climatic changes. One of the world's oldest and most constant problems, or blessings as it may be, is inherent in the relationships between man and woman. If the world is to continue, these relationships in some form will survive. On them depends man and woman of tomorrow, their number and their caliber.

Within contemporary culture in the United States, relationships between men and women are legitimized by the state to insure the nurture of offspring. When deemed appropriate, religious ceremony further sanctions the institution of marriage. Marriage counseling is focused within this heritage. This discussion will explore this development and its relation to the traditional and related professions. In this process it is clear that the philosophy and approach of the traditional professions, the specializations within them, as the individual men and women they serve, can in no way be considered static. Each is responding actively, passively or resistantly to social system variables, to scientific discovery, to economic exigencies, to the population crisis, and to requirements for survival.

According to Professor Harrop Freeman (1), "the history of all professions seems to follow much the same pattern: 1., a social problem arises, 2., it is treated by the most available unspecialized persons responding to the need, 3., a grouping of pertinent skills emerges, 4., recognized procedures and theoretical foundations are formulated, 5., a form of group consciousness and apprenticeship occurs, 6., education centers on theory and skills, 7., services become marketable and codes and standards develop, 8., specialization comes in, 9., a synthesis of specialization is devised, 10., the profession has to determine whether to surrender a part of its function to others or encompass a new social problem (whereupon the process repeats)."

It seems of interest to apply Professor Freeman's formulation of the steps of growth of a profession to the field of marriage counseling. Problems of social unrest, of family disorganization and breakdown, and the legal activation of divorce were accentuated in Western Europe and the United States following World War I. Eager and alert thinkers and doers in the oldest professions of medicine, religion and the law were inevitably involved through their clientele

[1] Section on Medical History, The College of Physicians of Philadelphia, November 25, 1974. This article is adapted and updated with permission from Chapter 7 in *Marriage and Family Counseling—Perspective and Prospect.* 1968. James A. Peterson, ed. New York: Association Press.

[2] Professor Emeritus of Family Study in Psychiatry and Consultant to the Division of Human Reproduction, Department of Obstetrics and Gynecology, The School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania 19104; Director, Marriage Council of Philadelphia, 1936-64.

with efforts to treat the ensuing pathology. The physician witnessed the physical effect on husband, wife and children of continuing conflict with its ensuing stresses: anger, fear and frustration. The minister, priest and rabbi ministered to the unhappy, the irresponsible and the abandoned. They were called upon for personal assistance and the moral tenets of their faith were challenged by the upsurge in the dissolution of the institution of marriage. The lawyer received increasing requests to obtain divorce whether he approved or disapproved. Legal inconsistencies embroiled him and his clients in disadvantageous, hypocritical and often undignified situations.

It is small wonder that the strivers and the liberals in these professions attempted to examine the etiology and sought earnestly for possible cures for difficulties in the relationships of husbands, wives and children. Personality, background or milieu, finances, and health, including sexual inadequacies, were scrutinized as causal factors. Help was offered the most upset and the most pressuring individuals, help primarily on a one-to-one basis, i.e., separate interviews with husband or wife as was then common in psychiatric practice. As this individual used assistance and made progress in the beginning resolution of his or her problems through a modification of attitudes, feelings and behavior, the effects on the married partner and the children were evident to all concerned. Once again, explorers in the professions realized they were dealing not only with an upset or basically disturbed individual but with the repercussions of this individual on his or her interpersonal relations in home, job, and community. The closest of these relationships admittedly was between husband and wife. As a result, marriage as a basic entity of interpersonal relationships became the focus of scrutiny by members of many professions, and the need for procedures of treatment was recognized. The unique elements in these relationships were identified or partialized and studied as units with their respective constructive and destructive potential for the individual, for the inter-relationships within the marriage and family, and in the community. Sex was awarded a conspicuous place in this partialization.

Following World War I, a form of group consciousness was evident. The Berlin Institute of Sexual Science was established in 1919, and by 1930 over one thousand *Eheberathungstellen*—Family Advice and Sex Hygiene Centers—sprang up in Germany, Austria, and the Scandinavian countries. The Marriage Guidance Movement was initiated in England to counteract the galloping divorce rate and, by 1932, three centers had pioneered in the United States: the American Institute of Family Relations in Los Angeles, the Marriage Consultation Center of the Community Church in New York City, under Drs. Hannah and Abraham Stone, and the Marriage Council of Philadelphia (2). In all of these early efforts, representatives of the traditional professions took active leadership. Centers were sponsored by forward-looking, well-known citizens from a variety of backgrounds, both lay and professional. Thus, marriage and family counseling as we know it today became the offshoot or pseudopod of a search by imaginative and restless members of the traditional professions. These men and women were willing to risk censure from conservative elements in order to seek new methods with which to allay the sufferings of their clientele and the resulting economic and social drain on community resources, morale, and health.

However, impressions indicate that through the 1950s or longer the majority of members of the professions of medi-

cine, religion, law, and the more recent fields of psychology, social work and guidance, viewed the treatment of marriage and family problems as inherent in their professional heritage with or without further specialized training. Through the efforts of self-selected individuals from these special interest groups, the American Association of Marriage Counselors (3) was chartered in 1942, and became responsible for increasing the skills of its membership through clinical meetings and the publication of case material. As services grew and became marketable, codes of behavior and standards of practice for the workers involved were agreed upon, were publicized, and wherever possible maintained.

This brings us to the period of the early 1950s when the term "marriage counseling" became familiar and was accepted gradually by professional individuals from these traditional and established professions as including specialized skills profiting from specialized training and experience. However, as recognition grew, the Association considered the possible advantages or disadvantages of a synthesis of specialization of marriage and family counseling with a variety of family and group therapies.

So much for the ten sequential points in the development of a profession as they apply to marriage counseling. To understand the interlacing of the helping professions and marriage and family counseling, a brief overview of a few of the changes in the philosophy of approach and training evident in these professions in the last thirty-five years may permit some understanding of the currents of theory and practice.

Medicine comes first in our scrutiny. From time immemorial, the concept of the physician encompasses counseling with his patients through the giving of directions and advice supplemented by medication. Before the era of specialization within the field of medicine, the family doctor who visited the homes of his sick patients was exposed intimately to their physical, emotional and interpersonal environment. Whether he wanted to or not, the impact of these forces within the marriage and the family on the health or illness of his patients was borne in upon him. Later, the discoveries of science ushered in the era of the specialist, whose specific knowledge served the patient with complex pathology and offered an important additional resource to the family physician. Freudian psychology gave enormous impetus to the specialization of psychiatry within medicine and the treatment of the emotional elements in illness. Pressures of time and economics grounded these specialists in an office or hospital to which the individual patient must come. The family relations of the patient therefore became more nebulous to the physician and often were given little consideration either in relation to the etiology of the illness, the rehabilitation of the patient, or the promotion of continuing health.

This isolation in the treatment of the patient, highlighted in the work of the early psychoanalysts, was customary in the work of many psychiatrists. Drs. Jackson, Satir, and Howells, among prominent contemporary therapists, have described and summarized aptly those factors which they feel have been moving psychiatry from its fraternal position to medicine to a present orientation influenced by psychology, sociology, and anthropology. They trace the steps in this field from the monadic (contact with one patient) to the diadic and, through current experimentation in family group therapy, to the triadic or multiple (4).

Hopefully, the results of experimental work in treatment and research bring pressure on professional training. Medical education in the last quarter century

has swung through a wide arc from focus on the doctor as clinician to the doctor as researcher and yet once again to the concept of the family or primary physician and his community involvements (5). However, during this interim, a few medical schools have introduced courses dealing with counseling and treatment of the patient in his or her relation to marriage, children or family as these might affect his health or illness. Such a course was first offered in 1952 and has since been continued at the School of Medicine of the University of Pennsylvania (6). More recently emphasis has focused on the area of sexuality as of vital importance in the life adjustment of both physician and patient. In 1974-75, approximately 90 of the 115 medical schools in the United States are giving some type of course on sexuality and interpersonal relations between men and women (7).

From medicine we turn to the three great religious faiths of the western world. Minister, priest, and rabbi have consistently included personal counseling with their parishioners as a basic responsibility. Surveys report that the majority of troubled persons turn first to their religious leader for help and that the problems for which assistance is asked are predominantly marriage and family difficulties (8). In spite of the apparent drop in church affiliation, trends do not seem to indicate change in this function but rather a greater self-consciousness in teaching in theological seminaries of all faiths as well as in the practicing minister, priest or rabbi concerning the art and science of interviewing, of relationship and of effectiveness in the process, method and results of counseling. Supervised training programs have been financed through the National Institutes of Mental Health and other sources and are increasing. One outstanding eight-year program was undertaken in Philadelphia at the Division of Family Study, resulting in a book as resource for appropriate courses (9).

In the great traditional profession of law, more ambivalence is evident concerning the lawyer as a marriage counselor than in the so-called "helping professions." In the graduate training program conducted at the Division of Family Study and Marriage Council since 1947, of the 313 men and women doctors, social workers, psychologists, teachers, ministers, priests, rabbis, and psychiatric residents who had completed training by June 1974, only three were practicing lawyers. This small percentage is reflected also in membership in the current American Association of Marriage and Family Counselors. We might well ask whether, if a lawyer, with his traditional training and experience in adversary attitudes, commits himself to defend his client against any or all opponents, then in a very real sense can he as a lawyer counsel both partners in a marriage? Yet it is generally recognized that counseling is an important adjunct to legal practice, and such facilities are available in a number of family courts (10). For this reason its methods and potentials should be understood and skill in referral to community resources developed.

In Japan, the Supreme Court in 1974 decreed that marriage counseling be required in Family Courts where divorce suits are contested (11). This is in contrast to divorce proceedings in which both partners concur; such cases are approved by payment of one dollar without legal proceedings.

In addition to the three traditional professions discussed, marriage counseling has become an important part of the more recent professions of psychology and social work. Practitioners in these fields spend much of their time in interviews with individuals, marriage partners,

and family members. This focus of interest is reflected in the changes in the professional background of membership in the American Association of Marriage and Family Counselors. Fifty percent of the charter group in 1947 was from the medical specialties. In 1966 psychology and social work claimed 50%, ministry 15%, medicine 8%, education 8%, sociology 5%, and law 1% (12).

The great pioneers in psychology—Freud, Pavlov, James—were experimentally oriented. Training emphasized the application of theory to the clinical approach and its importance in research. A variety of therapeutic schools of thought were developed under dynamic leadership. Members from these varying approaches to helping troubled persons became interested in the impact of problems of interrelationship between parent and child and man and woman in and out of marriage (13, 14, 15, 16). By the 1960s, a group of accredited members of the American Psychological Association had organized themselves into an Academy of Psychologists in Marriage Counseling, Inc. Many from this group are also members of the American Association of Marriage and Family Counselors and are active in promoting adequate professional standards and state licensure for the many psychologists who are practicing marriage counseling part- or full-time.

Now for a look at the profession of social work. Out of the charity organization movement and its principles of individuation and investigation of the poor (1877) evolved the present day family agency and the profession of social work. Casework was the method through which assistance was available to each and every member of a family in trouble (17). However, certain individual workers in recognized family agencies became interested in experimenting with the techniques of marriage counseling. Such services continued, and marriage counseling is currently accepted as part of family agency approach, supplemented in the last decade by family and group counseling. The Family Service Association of America, because of the high prevalence and serious consequences of marital problems among family agency clients, has undertaken extensive research under grant from NIMH to formulate the underlying processes involved in the resolution or alleviation of marital problems through caseworkers (18).

SUMMARY

Is it possible to summarize and point our sights on the future? We have developed the thesis that marriage and family counseling, of individuals jointly or in groups, has evolved through the initiative of leaders within the established helping professions and is currently recognized as an integral part of practice by many members of the helping professions. Like any new specialization, it has arisen out of the fabric of society's problems, and its impact reaches all professions occupied with health and illness and the promotion of competence in living. It has served as one means of dealing with certain aspects of the changing social and personal conditions of the twentieth century (19, 20, 21, 22). Perhaps most notable is the economic and psychological independence of women resulting from the Equal Rights Amendment of 1973 (23), the availability of simpler and easily obtained methods of child spacing (24), and new information concerning sexual abilities and potentials (25, 26). These new freedoms of experimental and on-going relationships between men and women, together with the mechanization of household equipment and prepared foods, turn job opportunities into realities for all women whether single or

married. As approximately 50% of the working force in the United States in 1974 is women, it is obvious that new and diverse divisions of home responsibilities for housekeeping, financing, and child rearing are now actualities (27, 28).

This decade reflects independence of action not only of women but of all ages, perhaps especially of the young, with tremendous emphasis on sexuality in public media of all types. Suggestive materials ranging from sensually erotic films, pictures, magazines and books—so-called pornography—are widely available. Novels, poems and popular literature cover almost all aspects of love and family relationships. Academically acceptable studies are published which furnish the readers with acceptable and reliable information about sexual physiology, case examples of distress and satisfaction in sexual relations of all types. In addition, careful instructions as to how the reader can achieve satisfaction in this sphere of life fill magazines, paperbacks and expensive texts of all descriptions.

Undoubtedly this material has gradually served to educate the masses. Ignorance is no longer an excuse for behavior that may result in disaster or for fears that may take much of the joy out of living and loving. This material has also been instrumental in promoting attitudes of greater openness, tolerance of difference, and more active participation in varieties of new and experimental behavior both individual and group. Considerable publicity is given to the Swingers and to other clubs for married and nonmarried partners. Reactions from and to homosexual associations of each sex are gaining partial acceptance from certain religious institutions as well as alerting the interest of lawmakers. Certain unmarried young people are in the process of living together sexually; others relate in a more total sense, sexually and in routine day-by-day responsibilities which formerly could be experienced only within the legal institution of marriage. These approaches raise questions concerning recognition of a new type of accepted relationship or marriage.

Unknown to most "liberals" of today, such a preamble to marriage was recommended in 1930 by Judge Ben Lindsey in his then-publicized book, *The Companionate Marriage.* Here he indicated that "it was perhaps a good thing for people to live together at least two years before marriage to see whether they were suited before committing themselves to a legal situation." At that period this suggestion was considered by all but a very few as a far-out joke.

Justifiably the public as well as representatives of the established institutions desire to know whether these more open variations in the intimate relations between male and female will eventuate in a greater stability and health or in more confusion, unrest and community pathology. As of 1974 there is little scientifically reliable data giving hard answers to guide the future. There is conjecture that the so-called sexual revolution is waning and that many people are fed up with what some Europeans consider an adolescent overemphasis on sex. Will this type of reaction lead to a return to conservatism and rigidity? We trust that what is healthy and contributes to overall competence and satisfaction in living for individual man and woman and their families will survive (29).

THE VIEW AHEAD

A unique opportunity has been mine. For over forty years I have been involved in the practice of marriage counseling. I have experienced personally the intriguing potentials from serving as the sole marriage counselor in a once-a-week

clinic in a borrowed doctor's office in 1933 to developing with staff and board of directors a university-associated Division of Family Study in a school of medicine. To grow apace with staff, peer and institutional relationships within both our division and the larger community has taken every bit of energy, discipline and creative daring that could be mustered. Often, of course, the results fell short of my own goals or those of my professional associates. Responsibilities on the national or international level greatly advanced my perspective, my tolerance for differences, and my respect and belief in the intimate and ultimate strength of human beings.

Throughout these rich and fertile opportunities I have believed, and still do, that marriage, or some equivalent responsible and enduring relationship, is entered into and carried out successfully on the basis of the interpersonal relations of the two individuals who agree to undertake it. As Americans, we hold democratic principles and the assimilation of divergent cultural values to be an integral part of our heritage. These values are brought to intimate focus within the institution of marriage, an institution which with variations has survived along with the realities of change. In my counseling I have learned that the pain experienced by many men and women within the institution has engendered a wish for an adequate solution and prevention of problems caused by assimilation and change and thus nurtured the profession of marriage counseling.

On the basis of the work in which I have been involved, I can say that what makes one person comfortable and happy may not necessarily do the same for another person. In my philosophy for contemporary living, it is most important to learn ways of communicating with those around us. Seeking to understand and seeking to be understood become imperative. Modern man-woman relationships, marriages and families are held together much more by common bonds of affection, sharing and respect than by economic or institutional pressures. Ultimately, these qualities rest upon the willingness to try to let each other know what one is feeling, what one is thinking, what one wants, as well as what one doesn't like. One of the few studies of *Success in Family Living* was done at the Division of Family Study of the University of Pennsylvania in 1965. It included one hundred families, two from each state in the United States and illustrates the emphases I have just mentioned (30).

In my personal life, as well as in work with my clients, I have found that giving up dreams of the perfect relationship is sometimes very hard. Taking responsibility for one's own part in a relationship is even harder, because it involves looking at oneself and modifying one's own behavior—not always a reassuring task.

I have spent many hours with young people and parents discussing their feelings and attitudes about the loving side of life and helping them to explore each other and communicate about their behavior and relationships. I have long since learned how different from one another people are and how vital it is to understand and respect their differences, which are based both on the genes with which each one begins life and the environment within which each develops and functions.

Work which is real expands because of its very vitality. It attracts to it persons suitably equipped, dedicated and idea-begetting and continually growing. I believe more deeply than ever that any future attempts to assist men and women in finding serenity and fulfillment in a life together will demonstrate that two of the world's deepest perennial necessities are increasing the knowledge

and validation of self and improving the relation of that self to its fellows.

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The Lankenau Hospital Research Institute Marine Experimental Station on Cape Cod, 1930–48[1]

By FRED B. ROGERS, M.D.[2]

When Louis Agassiz came to Harvard University as professor of natural history from Switzerland in 1848, he brought an aphorism: "Study nature, not books." This adage was heeded by the Lankenau Hospital Research Institute of Philadelphia when it opened its Marine Experimental Station on Cape Cod in the following century. For eighteen years, from 1930 to 1948, this summer laboratory, located at North Truro, Massachusetts, tapped the bounty of nature to decipher mechanisms of metabolism along the shore of Cape Cod Bay.

In the chapter on Truro in his book, *Cape Cod Pilot* (1937), Jeremiah Digges described this scientific outpost as follows (1):

> Beyond the juncture of the Long Nook Road, the highway drops into a hollow, which is known as Whitmanville. A road turns out left to the bottom of this hollow. It goes to the Bay Shore, where is located the Marine Experimental Station of the Lankenau Hospital Research Institute, of Philadelphia. Specialists have been working in this laboratory since 1930, their main line of investigation being the biological basis of cancer.
>
> The research . . . is under the direction of Dr. Frederick S. Hammett, who is known internationally for his studies of this disease. These men are attacking the problem of cellular growth, as a basic approach to the more specific study of the disease itself. The "spade-work" that has been accomplished is already widely recognized. Leading scientists come from all parts of the world to observe its progress.
>
> Marine life is essentially well suited for the experiments, and the Bay waters are free of factory pollution and other conditions that would tend to throw the tests off.
>
> What comes of this work may be of tremendous interest eventually, to a public that cannot follow the technical processes now.

The present Fox Chase Cancer Center of Philadelphia had its origins in the Lankenau Hospital Research Institute founded by Dr. Stanley P. Reimann (1891-1968), chief pathologist of the Lankenau Hospital. Funds donated by Mr. Rodman Wanamaker permitted the construction of a laboratory building on the hospital grounds (1925) and, in 1927, Dr. Frederick S. Hammett, a physiological chemist, was appointed scientific director. Dr. Hammett established a summer laboratory on Cape Cod where marine invertebrates were utilized in the study of growth processes. Its first building, a small laboratory built like a Cape Cod cottage, was erected in 1928; a second, larger building was constructed eight years later. A third structure subsequently completed the compound which nestled amid the dunes overlooking Cape Cod Bay.

Beginning in 1932, with the help of the Lankenau Hospital Women's Auxiliary, assistants were supplied who worked at North Truro from May 1 to September 30 each year. Scientific contributions to the growth problem were published in a series of research papers from this seashore laboratory. Their unifying theme was a quest for under-

[1] Section on Medical History, The College of Physicians of Philadelphia, January 6, 1975. This article honors the Fox Chase Center for Cancer and Medical Sciences, observing its 50th Anniversary in 1975.

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standing the nature, cause, and treatment of cancer through basic studies of growth and differentiation and their underlying hereditary mechanisms (2).

Frederick Simonds Hammett, the guiding spirit of the Institute's formative period, was an individualistic New Englander, a high-spirited man full of interesting ideas. He was born at Chelsea, Massachusetts, on September 9, 1886, son of Charles F. Hammett, a native of Auburn, Maine, and his wife, Nellie Hunt, who came from Lawrence, Massachusetts. Fred received an A.B. degree from Tufts College in 1908, then completed graduate studies at Rhode Island State College (S.M., 1911) and Harvard University (A.M., 1914; Ph.D. in Medical Science, 1915). He served as professor of physiology (1915-16) and biochemistry (1916-17) at the University of Southern California before returning to Harvard as an instructor in anatomy and secretary of its Graduate School of Medicine. In 1919 he moved to the Wistar Institute of Anatomy and Biology, Philadelphia, and was appointed a lecturer in zoology at the University of Pennsylvania (3).

Dr. Stanley P. Reimann wrote about his meeting Dr. Hammett soon after the latter's arrival in Philadelphia (4):

> It was right after World War I that Frederick Hammett was working at the Wistar Institute, when at the Pathological Society of Philadelphia he presented a paper on pH measurements. With vim and vigor, with clarity and force, he demonstrated with test tubes, indicators and reagents his methods for determining this all-important factor in the control of many phenomena of living things . . . .
>
> After hearing Dr. Hammett present his paper, I wanted to clear up several technical points in connection with his work, and so I visited him at the Wistar Institute, but after having gone over these technical matters, our talk naturally

Fig. 1. Original laboratory of the Lankenau Hospital Research Institute Marine Experimental Station, North Truro, Cape Cod. Photograph courtesy of Dr. Nicholas Padis.

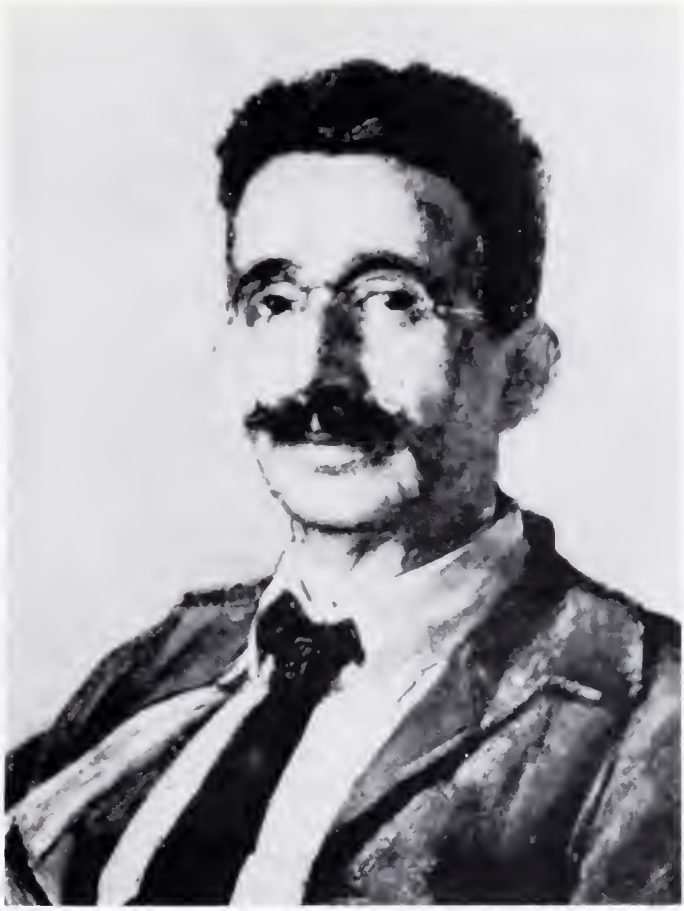

Fig. 2. Dr. Frederick S. Hammett, portrait painted at Provincetown, Massachusetts, in 1942 by Mr. Richard E. Miller. Photograph courtesy of the Provincetown Art Association, Inc.

gravitated toward cancer, the problem which was of such absorbing interest to me. "Why," said Hammett, "don't you try to gather together a few people, try to interest some one in building a laboratory at Lankenau Hospital, and start work on problems of growth and development." "Growth and development—both normal and abnormal?" I asked, and he nodded his head vigorously. Thus was crystallized the idea of the Lankenau Hospital Research Institute.

The animal kingdom is divided into about 20 main groupings or phyla. Each of these is set apart from the others by a certain number of shared bodily characteristics. The invertebrates (animals without backbones) comprise 19 of these phyla—as contrasted to the *one* phylum containing the vertebrates, or animals with backbones. Invertebrates range all the way from single-celled organisms to highly complex animals such as snails and lobsters. Marine representatives of six invertebrate phyla (porifera, coelenterata, echinodermata, annelida, mollusca, arthropoda) provide the more important examples for laboratory study. Their relatively primitive chemical and structural life processes present basic models for scientific investigation and comparison. All the major invertebrate groups started in the ocean, but in the course of time many of them evolved forms that adapted to live on land (5).

On October 1, 1930, Dr. Hammett

presented a paper at The College of Physicians of Philadelphia entitled "Regeneration reaction to sulfhydryl and its partially oxidized derivatives." Published in the College's *Transactions* for 1930, it noted that, "this work was done during the past summer at the Marine Experimental Station of the Research Institute of the Lankenau Hospital," with "my coworker, Miss Dorothy Wall Smith" (later Mrs. Hammett). The report described regeneration experiments performed on the claw of the hermit crab (*Pagurus longicarpus*). This and similar experiments on other forms of life, it stated, "uncovered the fundamental biological fact that growth by increase in cell number is regulated by a chemical equilibrium in which the sulfhydryl group and its partially oxidized derivatives are the constituent elements." Hammett reported that, "cell proliferation has been stimulated in plants, paramecium, rats, mice and man by a variety of compounds bearing the—SH group, while retardation has been effected in these several forms by the > S = O or sulfoxide group." He concluded that, "these results . . . give presumptive evidence of a biological basis for the assumption that malignant growth, like all other so far tested, is significantly conditioned by the sulfhydryl-suboxidized sulfur equilibrium" (6).

On May 4, 1932, Dr. Hammett read another paper before the Philadelphia College of Physicians: "Cancer: As a problem of the biology of cell division." This article appeared in the College *Transactions* volume of 1932. It summarized "the central problem of the work of our Institute for the past four years," and noted that, "sulfhydryl is the naturally occurring, essential and specific, chemical stimulus to cell division." Hammett added that, "by its proper exhibition to growing things, such as the skin of the mouse and rat, the aberrant growths resulting from injury to the regenerating chela of the hermit crab, and the growth center of the distal segment of this same structure, it is possible to produce wild and unorganized overgrowths. These, in their architecture and cytology, resemble the picture given by malignant growths in man" (7).

In 1936 Fred Hammett's 62-page monograph, *The Nature of Growth: A Logistic Inquiry*, issued from Provincetown, Massachusetts, was printed by the Science Press of Lancaster, Pennsylvania. It consisted of 20 chapters (306 numbered paragraphs) covering the subject of growth and combining the author's and others' experiences. In this booklet Hammett summarized his life in science to that time, paid tribute to his teachers and colleagues, and cited his experiments upon the marine hydroid *Obelia geniculata*—using amino acids and the carcinogen methylcholanthrene. (His subsequent 7-year observations documenting the growth and life-cycle of the coelenterate *Obelia*—small, colonial animals common on submerged or floating wood, stones, and seaweeds—were published in the journal GROWTH between 1942 and 1950. Phase photography was used to record the organism's developmental, mature and senile stages.)

Written without punctuation and without capital letters, *The Nature of Growth* makes exasperating, yet informative reading. Here are the opening and closing paragraphs from that treatise (8):

> (I, 1) Students of growth seem to be accretionists or developmentalists—measurers of change in size weight and number—or of change in form structure and arrangement
>
> (XX, 306) This essay then is concerned with growth as an intrisic endowment of cytoplasm—not as a series of processes responsive to extrinsic or adventitious factors—as such it is now finished

Another aspect of Hammett's involvement on Cape Cod was his activity in the

Provincetown Art Association. Artist Ross Moffett in his 1964 history, *Art in Narrow Streets* (Chapter 7—'Lively Times 1937-38'), wrote (9):

> Dr. Frederick Hammett, the new president of the Association, was a scientist and director of the Lankenau Laboratories, then in operation near Great Hollow beach in Truro. Active in mind and personality, he was not a man to accept a passive role in any situation in which he found himself. . . .
>
> What is in some respects the most unusual document in the Association files is the report President Hammett gave at the 1937 annual meeting. Couched in clinical language, some excerpts are as follows . . . . 'The Provincetown Art Association is a victim of encephalitis lethargica, or sleeping sickness. . . . The sequelae of encephalitis are observable. There is neuro-muscular incoordination. . . . Then there is anemia. . . . An infusion of new healthy blood is necessary.'
>
> Although Dr. Hammett in his annual report for 1937 . . .had viewed himself as a one-term president, the trustees reappointed him for another year, and he accepted. . . . At the July business meeting of 1938 Dr. Hammett presided, but announced his intention of resigning before the annual meeting in August. . . . The relations between the president and the board of trustees had reached the breaking point. . . . So ended the brief administration of the most audacious personality the Association has seen in a post of chief importance. . . . When the smoke cleared away, it became apparent that he had greatly influenced the future course of the Association.

An organizational role of greater moment was played by Hammett in establishing the journal GROWTH. Botanist Philip R. White of the Jackson Memorial Laboratory at Bar Harbor, Maine, told this account (10):

> I first met Fred Hammett in the summer of 1936. He had written to a number of people the country over, urging the desirability of a new journal to deal with the problems of 'growth'. It was his idea that it should cut through all the old categories based on either taxonomic compartments: Zoology, Botany, Entomology; or methods of approach: Chemistry, Psychology, Statistics; and should treat the one phenomenon, *growth*, as exemplified in all fields and as approached by whatsoever method. . . .
>
> I had some slight acquaintance with Dr. Hammett's early work. I admired the way in which he had deduced the concept of sulfhydryl control of growth phenomena from a careful study of a particular phenomenon—the toxicity of heavy metals for root-tips of onion—and had extended that concept to more general zoological and medical applications. I had already caught some glints of the flair for broad strokes which were so much a part of Fred's peculiar pattern of thought. . . . (11)
>
> I spent the better part of three days in the little North Truro Laboratory just reading,—letter after letter. When I was through I said to him: 'Dr. Hammett, these letters certainly show the existence of . . . a need for a new and different journal. . . . If such a journal is established I will do what I can to help you make a success of it.'

After further discussion with scientists at the Marine Biological Laboratory, Woods Hole, and elsewhere, *GROWTH. A Journal for Studies of Development and Increase*, published its first number in April, 1937. Hammett, as editor-in-chief, wrote a lucid 'christening address'. His friend Philip White later wrote of it: "The broad principles, the objectives, the general plan were clearly and cogently stated. He knew what he wanted to say and how to say it. We, his co-workers knew that it was worth saying. That address was not seriously marred by Fred's later tendency to Provincetown jargon. We were off!"

The initial editorial board of *GROWTH* met at the Colonial Inn, Provincetown, in the summer of 1937—a distinguished group of eleven scientists recruited from various disciplines. Thirteen years later, on the occasion of Dr. Hammett's retirement in June, 1950, from active participation in the research program of the Lankenau Hospital Research Institute, colleagues from inside and outside of the Institute joined in honoring him by written tributes. Dr. Irene Corey Diller of Philadelphia was then the journal's editor-in-chief (12).

No review of the activities of Fred Hammett would be complete without acknowledgment of the important part he played in the formation of the Society for the Study of Development and Growth. This Society had its origin in a scholarly symposium held at North Truro from August 7-11, 1939. Dr. Warren H. Lewis, a member of the Wistar Institute, presided as its first president-and Prof. Joseph Needham, biologist from Cambridge University in England, was the principal foreign guest. Among the twenty-five participants was Dr. Conrad H. Waddington, who later became professor of animal genetics at the University of Edinburgh in Scotland. Dr. Paul A. Weiss of the University of Chicago was the Society's organizing secretary.

Dr. Hammett made the physical arrangements for the meeting, using the local Truro School, adjacent Whitman House cabins, and the Flagship Restaurant in Provincetown for guest accommodations. The Growth Symposium was a great success; it initiated a series of annual gatherings, the one in 1950 a joint meeting with the International Congress for Cell Research held at New Haven, Connecticut (13).

Despite his energetic accomplishments, Fred Hammett was a sickly, frail man for much of his life. He suffered from pulmonary tuberculosis, requiring pneumothorax therapy, for many years. His death, which occurred at his home in Provincetown on April 14, 1953, was due to prostatic cancer. His wife, Dorothy Wall Hammett, and two sons, Richard Lewis and Frederick, Jr., survived him. Memorials to Dr. Hammett by Drs. Stanley Reimann (14) and Philip White (15) were presented at the annual meeting of the Society for the Study of Development and Growth on June 20, 1953, and published in GROWTH later that year.

In 1948, a century after Louis Agassiz's arrival in Massachusetts, the North Truro marine experimental station held its last summer session. The varied group of scientists and others who convened there during the halcyon years since its founding *had* studied nature, not just books. And several romances which developed along Cape Cod Bay and the Pamet River culminated in happy marriages. Memories and memoirs would later recall this productive interlude of science-by-the-sea. The laboratory site today, its buildings privately enjoyed for recreational purposes, lies near the Cape Cod National Seashore, a scenic park established in 1961 which affords pleasure to numerous vacationers each year.

ACKNOWLEDGMENT

I am indebted to Drs. Irene Corey Diller and William F. Diller, Dr. and Mrs. Nicholas Padis, and Dr. and Mrs. Sidney Weinhouse for their recollections of the Lankenau Hospital Research Institute Marine Experimental Station.

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Memoir of John Anthony Diemand 1886–1974

By T. GRIER MILLER, M. D.

John Anthony Diemand became, in 1955, one of our Honorary Associate Fellows. This resulted from his help, during my presidency of our College (1949-52), in securing funds for the erection of the addition to library facilities to our building. That activity demonstrated for us his deep interest in medical services to the public. The data which I now will report regarding his background and accomplishments, and which I have acquired from his associates, will not only confirm that humanistic aspect of his character, but outstanding accomplishments throughout his life on a similar basis.

When he was four years of age—the youngest of four children—his father died and two years later, his mother. Then, because there were no other adults in the family, all of the children were taken over by neighbors. At the age of 8 he was admitted, as an orphan, to Girard College. There he became interested in engineering, learned stenography and typewriting, and took part in athletics, especially baseball and soccer. Graduating at 17, he applied for work in the engineering field, but was turned down. Then a friend, who sold typewriters, asked him to demonstrate one in the office of an insurance company. His expertness was such that a job in that office, at eight dollars a week, was offered to him, and he accepted. Benjamin Rush, as president of the Insurance Company of North America, was so impressed by Diemand's ability, that he ultimately asked him to start a reorganization of the Indemnity Insurance Company. The result of that and other accomplishments led, in 1941, to his presidency of the Insurance Company of North America.

Mr. Diemand also became involved in many other business enterprises. He was a founder of The College of Insurance of New York and a Director of the Central Penn National Bank, the Philadelphia Electric Company, the Pennsylvania Railroad, and the Fidelity Mutual Life Insurance Company. Also he became chairman of the Philadelphia Board of City Trusts and therefore actively involved with Girard College and the Wills Eye Hospital. He was the founder of the Philadelphia Crime Commission and a director of Boy Scouts. Deepest in his heart was always Girard College.

He received many awards, including those of the National Association of Christians and Jews, the Franklin Institute, the Girard Square Association, and the Philadelphia Public Relations Association; also the Isaiah Williamson, the Edward Powel, and the William Penn awards. Also he received doctorate degrees from the University of Pennsylvania, Jefferson Medical College, St. Joseph's College, Bucknell University, and the Drexel Institute. He was elected to the Insurance Hall of Fame for "leadership, enterprise, innovation, integrity, and vision." Certainly he was a world leader in the insurance business, always primarily interested in new ways to improve the policyholder's interest. In that connection he took much interest in legislation, making many lectures throughout the country. According to records, he was alert, venturesome, and always ready to experiment, but at the same time cautious and especially interested in

the welfare of the public. Certainly he was an outstanding business leader and citizen of our country. At a lecture before a graduating class at Bucknell University he is quoted as having said, "Character is something 'knowhow' cannot make, nor dollars buy. If you find it in books it will be beyond the words and between the lines. I urge all people to be busy in civic activities—to do things for the good of the community. It will depend on something quite apart from the 'knowhow' that you now are taking from your campuses into commerce."

Diemand's wife was the former Mabel Cameron. They lived on a farm of 150 acres in Bucks County, had a small dairy, some hogs and steers and 40 acres of fruit trees. There he devoted much of his weekends to making decisions and doing country work. He leaves also, John A. Diemand, Jr., to whom I am much indebted for help with this memoir.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of Richard T. Ellison 1894–1974

By THOMAS W. CLARK, M. D.

Richard T. Ellison died on May 10, 1974, at the age of 80. He had been a Fellow of the College for 46 years. He was graduated from the College of the University of Pennsylvania in 1915 and from its School of Medicine in 1918.

He joined the staff of All Saints Hospital (then known as the Home for Consumptives) in 1920 as an associate physician under Dr. William Enders, the chief medical officer and superintendent of the hospital. At that time and up until 1957, the hospital was devoted entirely to the care of patients with tuberculosis. In these years Dr. Ellison became an expert in the management of tuberculosis and gave leadership to the use of new methods of treatment for the disease. In 1941, he succeeded Dr. Enders as chief medical officer of the hospital and remained its medical director until his retirement in 1963. During these years he was also chief of the Chest Clinic maintained by the Commonwealth of Pennsylvania at Abington Memorial Hospital.

In 1953, All Saints Hospital began to phase out its program for the care of patients with tuberculosis and to develop a new program for the care and rehabilitation of patients with the effects of chronic disease. On April 11, 1957, the Rehabilitation Unit received its first patient. Dr. Ellison played a leading role in planning the new program and guided it skillfully through its first difficult years until his retirement in 1963.

Dr. Ellison was married for many years to Mary Cunius, who died on January 23, 1972. She had been a trained nurse at the Pennsylvania Hospital. A son, Dr. Richard T. Ellison, Jr., and a daughter, Mrs. Mary Hastings, survive from this marriage. He was married a second time to Marian H. Ellison, who survives him.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of William C. Hunsicker, Jr. 1902–74

By CHARLES C. WOLFERTH, JR., M.D.

William C. Hunsicker, Jr., was born March 16, 1902 in Philadelphia. He was the son of William C. Hunsicker, M.D., and Cornelia Higbee. Dr. Hunsicker, Sr., was Professor of Urology at Hahnemann Medical College and Hospital was well known as Pennsylvania State Senator and, at one time, head of the Philadelphia Health Department. Dr. Hunsicker, Jr., had a sister, Mary, and a brother, Horace, who also became a physician following his graduation from Hahnemann.

William C. Hunsicker, Jr., was graduated in 1919 from Friends Select School and in 1923 from Haverford College, where he was an active player on the soccer team.

In 1923 he entered Hahnemann Medical College, graduating with an M.D. in 1927. He subsequently interned at Hahnemann and served as chief resident physician at the same institution.

On July 23, 1928, Dr. Hunsicker married Helen Wilson and is survived by her, and by his three children, William C. Hunsicker, III, Mrs. Suzanne Altschuler, and Mrs. Judith Burr.

Following the completion of his residency at Hahnemann, he underwent extensive training in urology and was subsequently certified by the American Board of Urology and elected to fellowship in the American College of Surgeons.

He held progressive appointments at Hahnemann and in 1957 was appointed professor of surgery and head of the Division of Urology. Dr. Hunsicker developed the first formally-approved urology training program at Hahnemann.

Over the years, Dr. Hunsicker trained many urologists who subsequently achieved distinction in their own right.

Following a distinguished career at Hahnemann, Dr. Hunsicker retired from his academic post on April 6, 1965, and was elected emeritus professor of surgery at Hahnemann. However, he continued in active urological practice for several more years.

At the time of his retirement as director of urology, Dr. Hunsicker was elected to the Board of Trustees of Hahnemann Medical College and served for several years in that capacity.

Over the years he maintained an intense interest in his alma mater and served actively in the affairs of its Alumni Association.

He was an active and enthusiastic member of the Union League of Philadelphia and a member of the 12-30 Young Men's Table there.

Philately was his intense hobby and over many years he developed an outstanding stamp collection.

In 1970 he retired to his country home in Hance's Point, Maryland, where he stayed in close touch with his many Philadelphia friends and colleagues.

He died on March 18, 1974, of congestive heart failure. He will be missed by his many colleagues, former residents and a large circle of friends.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

Memoir of J. Stauffer Lehman 1906–74

By LUTHER W. BRADY, M.D.

J. Stauffer Lehman, M.D., a physician of particular dedication whose efforts resulted in major advances in diagnostic radiology, died in Ocean City, New Jersey, on June 11, 1974. The scientific contributions for which he is best known are probably those dealing with cardiovascular visualization studies and ultrasound. Testimony to his devotion can be witnessed from the fact that just four days before his death—even though ill—he presented a summary of his work in ultrasound at a Diagnostic Ultrasound Seminar in Philadelphia.

Born March 23, 1906, in Bristol, Pennsylvania, Dr. Lehman received a premedical degree of Bachelor of Science in 1927 from the Hahnemann College of Science. Four years later, Hahnemann Medical College conferred an M.D. degree upon him. A one-year internship at Hahnemann Medical College and Hospital was followed by a residency in radiology from 1932 to 1935 under Dr. Robert J. Reeves at Duke University Hospital. Dr. Lehman then served as an assistant in pathology to Dr. Joseph Bloodgood at Johns Hopkins University School of Medicine.

Returning to Philadelphia, he served as radiologist at the Mercy Catholic Medical Center and at Nazareth Hospital until 1942. He then joined the Department of Radiology at Hahnemann Medical College and Hospital and was named professor and chairman of the Department in 1949, a post he was to hold for twenty-one years. Retiring in 1970, Dr. Lehman was elected emeritus professor. He retained an active clinical interest and, as a result, became senior associate in the Department of Radiology at Shore Memorial Hospital.

Closely allied to Dr. Lehman's clinical interest was an equivalent concern for research. Of especial significance were his contributions to the radiology of cardiovascular disease. As director of the Radiologic Research Laboratories at Hahnemann, he held grants from many agencies, including the James Picker Foundation, the Heart Association of Southeastern Pennsylvania, and the National Heart Institute. From the research programs emerged new techniques for clinical opacification studies of the heart and great vessels. To carry out these procedures, new instrumentation, such as advances in catheters and pressure injectors, also were developed.

Dr. Lehman, acutely aware of the potential benefits of ultrasound to diagnosis, initiated research in 1956 related to the heart and major vessels. He conducted extensive investigations to define calcium deposition in heart valves. It was not until four years later, however, that his labors—linked to those of a group from Smith Kline & French Co.—yielded advances in equipment for ultrasound. Exploring this new technology for diagnosis occupied the remainder of not only his academic career but his retirement as well. Dr. Lehman's contributions in examination of the kidney, liver, spleen, gall bladder, and breast are hallmarks in the development of patterns of identification of normal and diseased organs. Moreover, he helped make possible major new applications of ultrasound to obstetrics, including not only definitions of bi-parietal cephalometry but also son-

opelvimetry and examinations of the gravid uterus.

Frequent honors were bestowed upon Dr. Lehman throughout his carrer. He was president of the Philadelphia Roentgen Ray Society and vice president of the American Institute of Ultrasound in Medicine. In 1958 the American Roentgen Ray Society granted him the Ninth Gold Medal Award in recognition of his work in coronary arteriography. Also, he received numerous certificates for excellence from the Radiological Society of North America and the American Roentgen Ray Society for scientific exhibits on cardiovascular visualization procedures and clinical application of ultrasound.

He was the Annual Lecturer in 1959 at the Pennsylvania Radiological Society, giving the Luther Hinkel Lecture on "The Development and Potentialities of Coronary Arteriography." The following year he was the George W. Holmes Lecturer for the New England Roentgen Ray Society and in 1961 the Eugene P. Pendergrass Lecturer for the Philadelphia Roentgen Ray Society. He was honored by the Philadelphia Roentgen Ray Society for contributions to the field of radiology in 1969 and, in the same year, was named Alumnus of the Year by Hahnemann Medical College.

Among his varied achievements is establishment of one of the first schools of radiologic technology. Dr. Lehman was chairman of committees on nomenclature for ultrasound studies of the American College of Radiology, a member of the Editorial Board of *Radiology* and of the Editorial Board of the *Journal of Clinical Ultrasound.* His contributions to the radiologic literature number more than 100.

This year, in honor of Dr. Lehman's devotion to Hahnemann Medical College and of his notable contributions to medicine, the J. Stauffer Lehman Research Laboratories in Diagnostic Radiology were established at the institution. Hanging prominently in the Laboratories is a portrait commissioned by his colleagues at the time of his retirement as chairman of the Department.

He is survived by his wife and two sons, J. Stauffer Lehman, Jr., M.D., and James A. Lehman.

This memoir was prepared and published at the request of the Council of The College of Physicians of Philadelphia.

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